Smithsonian

May 1993

A Picasso

From the Barnes Foundation
(p. 96)

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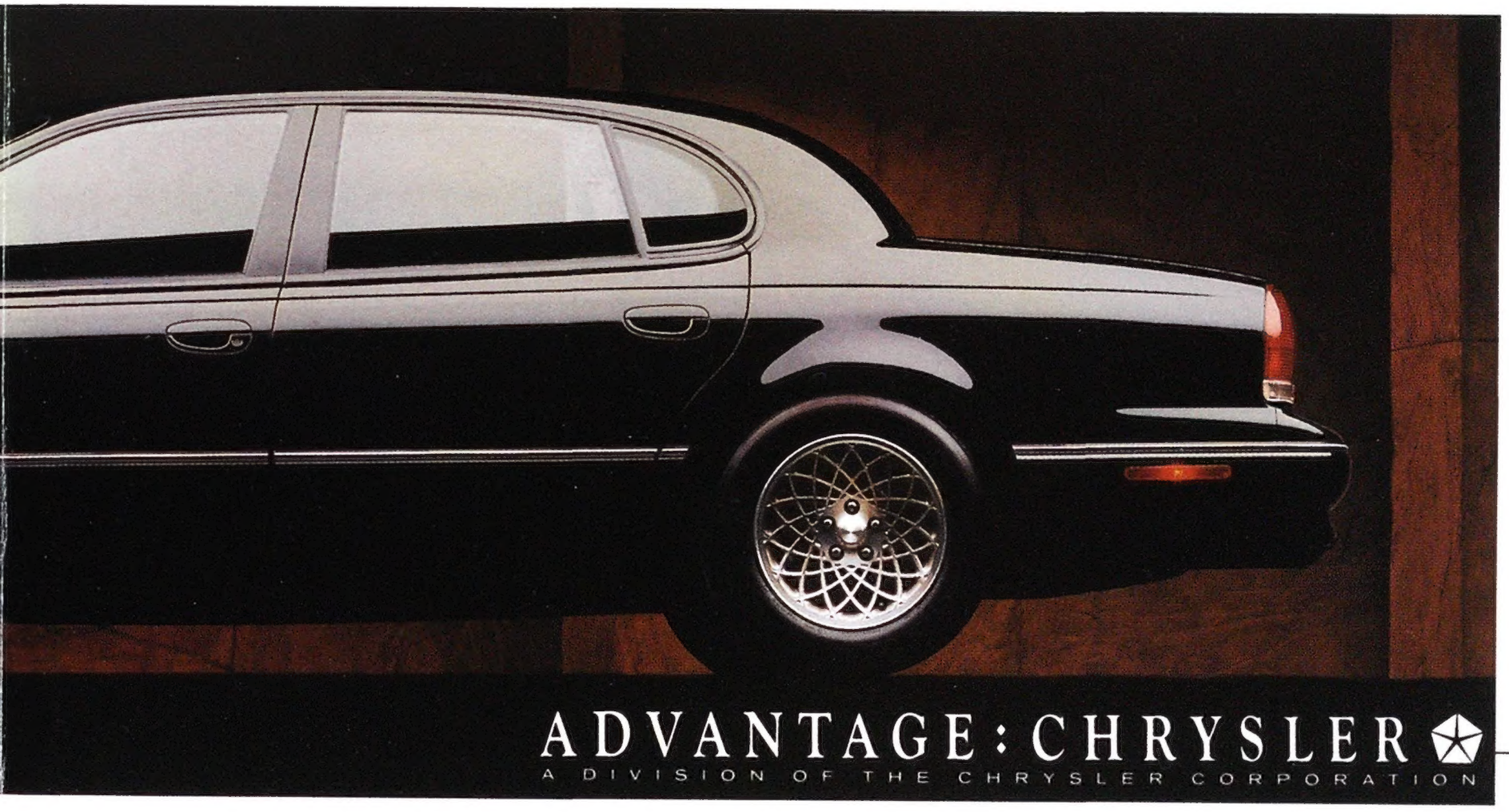

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May 1993

Smithsonian

Volume 24, Number 2

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B0175

Brief Summary of
Prescribing Information as of October 1992 (2)
CARDIZEM® CD
(diltiazem hydrochloride)
Capsules

Brief Summary of
Prescribing Information as of April 1992
CARDIZEM® SR
(diltiazem hydrochloride)
Sustained Release Capsules

Brief Summary of
Prescribing Information as of January 1991
CARDIZEM®
(diltiazem hydrochloride)
Tablets

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, (3) patients with hypotension (less than 90 mm Hg systolic), (4) patients who have demonstrated hypersensitivity to the drug, and (5) patients with acute myocardial infarction and pulmonary congestion documented by x-ray on admission.

WARNINGS

1. **Cardiac Conduction**. CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (13 of 3,290 patients or 0.40%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.
2. **Congestive Heart Failure**. Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). An acute study of oral diltiazem in patients with impaired ventricular function (ejection fraction 24% ± 6%) showed improvement in indices of ventricular function without significant decrease in contractile function (dp/dt). Worsening of congestive heart failure has been reported in patients with preexisting impairment of ventricular function. Experience with the use of CARDIZEM (diltiazem hydrochloride) in combination with beta-blockers in patients with impaired ventricular function is limited. Caution should be exercised when using this combination.
3. **Hypotension**. Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
4. **Acute Hepatic Injury**. Mild elevations of transaminases with and without concomitant elevation in alkaline phosphatase and bilirubin have been observed in clinical studies. Such elevations were usually transient and frequently resolved even with continued diltiazem treatment. In rare instances, significant elevations in enzymes such as alkaline phosphatase, LDH, SGOT, SGPT, and other phenomena consistent with acute hepatic injury have been noted. These reactions tended to occur early after therapy initiation (1 to 8 weeks) and have been reversible upon discontinuation of drug therapy. The relationship to CARDIZEM is uncertain in some cases, but probable in some. (See PRECAUTIONS.)

PRECAUTIONS

General

CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any drug given over prolonged periods, laboratory parameters of renal and hepatic function should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.
Dermatological events (see ADVERSE REACTIONS section) may be transient and may disappear despite continued use of CARDIZEM. However, skin eruptions progressing to erythema multiforme and/or exfoliative dermatitis have also been infrequently reported. Should a dermatologic reaction persist, the drug should be discontinued.

Drug Interactions

Due to the potential for additive effects, caution and careful titration are warranted in patients receiving CARDIZEM concomitantly with other agents known to affect cardiac contractility and/or conduction. (See WARNINGS.) Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)
As with all drugs, care should be exercised when treating patients with multiple medications. CARDIZEM undergoes biotransformation by cytochrome P-450 mixed function oxidase. Coadministration of CARDIZEM with other agents which follow the same route of biotransformation may result in the competitive inhibition of metabolism. Dosages of similarly metabolized drugs such as cyclosporin, particularly those of low therapeutic ratio or in patients with renal and/or hepatic impairment, may require adjustment when starting or stopping concomitantly administered CARDIZEM to maintain optimum therapeutic blood levels.
Beta-blockers: Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers is usually well tolerated, but available data are not sufficient to predict the effects of concomitant treatment in patients with left ventricular dysfunction or cardiac conduction abnormalities.
Administration of CARDIZEM (diltiazem hydrochloride) concomitantly with propranolol in five normal volunteers resulted in increased propranolol levels in all subjects and bioavailability of propranolol was increased approximately 50%. If combination therapy is initiated or withdrawn in conjunction with propranolol, an adjustment in the propranolol dose may be warranted. (See WARNINGS.)
Cimetidine: A study in six healthy volunteers has shown a significant increase in peak diltiazem plasma levels (58%) and area-under-the curve (53%) after a 1-week course of cimetidine at 1,200 mg per day and a single dose of diltiazem 60 mg. Ranitidine produced smaller, nonsignificant increases. The effect may be mediated by cimetidine's known inhibition of hepatic cytochrome P-450, the enzyme system responsible for the first-pass metabolism of diltiazem. Patients currently receiving diltiazem therapy should be carefully monitored for a change in pharmacological effect when initiating and discontinuing therapy with cimetidine. An adjustment in the diltiazem dose may be warranted.
Digitalis: Administration of CARDIZEM with digoxin in 24 healthy male subjects increased plasma digoxin concentrations approximately 20%. Another investigator found no increase in digoxin levels in 12 patients with coronary artery disease. Since there have been conflicting results regarding the effect of digoxin levels, it is recommended that digoxin levels be monitored when initiating, adjusting, and discontinuing CARDIZEM therapy to avoid possible over- or under-digitalization. (See WARNINGS.)
Anesthetics: The depression of cardiac contractility, conductivity, and automaticity as well as the vascular dilation associated with anesthetics may be potentiated by calcium channel blockers. When used concomitantly, anesthetics and calcium blockers should be titrated carefully.

Carcinogenesis, Mutagenesis, Impairment of Fertility

A 24-month study in rats at oral dosage levels of up to 100 mg/kg/day, and a 21-month study in mice at oral dosage levels of up to 30 mg/kg/day showed no evidence of carcinogenicity. There was also no mutagenic response in vitro or in vivo in mammalian cell assays or in vitro in bacteria. No evidence of impaired fertility was observed in a study performed in male and female rats at oral dosages of up to 100 mg/kg/day.

Pregnancy

Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was an increased incidence of stillbirths at doses of 20 times the human dose or greater.
There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers

Diltiazem is excreted in human milk. One report suggests that concentrations in breast milk may approximate serum levels. If use of CARDIZEM is deemed essential, an alternative method of infant feeding should be instituted.

Pediatric Use

Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded from these studies.
In domestic placebo-controlled angina trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.
The adverse events described below represent events observed in clinical studies of hypertensive patients receiving either CARDIZEM Tablets or CARDIZEM SR Capsules as well as experiences observed in studies of angina and during marketing. The most common events in hypertension studies are shown in a table with rates in placebo patients shown for comparison. Less common events are listed by body system; these include any adverse reactions seen in angina studies that were not observed in hypertension studies. In all hypertensive patients taking CARDIZEM Tablets or CARDIZEM SR Capsules studied (over 900), the most common adverse events were edema (9%), headache (8%), dizziness (6%), asthenia (5%), sinus bradycardia (3%), flushing (3%), and first-degree AV block (3%). Only edema and perhaps bradycardia and dizziness were dose related.

Double Blind Placebo-Controlled Hypertension Trials

Adverse	Diltiazem N = 315 # pts (%)	Placebo N = 211 # pts (%)
Headache	38 (12%)	17 (8%)
AV Block First Degree	24 (7.6%)	4 (1.9%)
Dizziness	22 (7%)	6 (2.8%)
Edema	19 (6%)	2 (0.9%)
Bradycardia	19 (6%)	3 (1.4%)
ECG Abnormality	13 (4.1%)	3 (1.4%)
Asthenia	10 (3.2%)	1 (0.5%)
Constipation	5 (1.6%)	2 (0.9%)
Dyspepsia	4 (1.3%)	1 (0.5%)
Nausea	4 (1.3%)	2 (0.9%)
Palpitations	4 (1.3%)	2 (0.9%)
Polyuria	4 (1.3%)	2 (0.9%)
Somnolence	4 (1.3%)	---
Alk Phos Increase	3 (1%)	1 (0.5%)
Hypotension	3 (1%)	1 (0.5%)
Insomnia	3 (1%)	1 (0.5%)
Rash	3 (1%)	1 (0.5%)
AV Block Second Degree	2 (0.6%)	---

The following table presents the most common adverse reactions reported in placebo-controlled angina and hypertension trials in patients receiving CARDIZEM CD up to 360 mg with rates in placebo patients shown for comparison.

CARDIZEM CD Capsules Placebo-Controlled Angina and Hypertension Trials Combined

Adverse Reaction	CARDIZEM CD N = 607	Placebo N = 301
Headache	5.4%	5.0%
Dizziness	3.0%	3.0%
Bradycardia	3.3%	1.3%
AV Block First Degree	3.3%	0.0%
Edema	2.6%	1.3%
ECG Abnormality	1.6%	2.3%
Asthenia	1.8%	1.7%

In clinical trials of CARDIZEM CD Capsules, CARDIZEM Tablets, and CARDIZEM SR Capsules involving over 3200 patients, the most common events (ie, greater than 1%) were edema (4.6%), headache (4.6%), dizziness (3.5%), asthenia (2.6%), first-degree AV block (2.4%), bradycardia (1.7%), flushing (1.4%), nausea (1.4%), and rash (1.2%).
In addition, the following events were reported infrequently (less than 1%) in angina or hypertension trials:
Cardiovascular: Angina, arrhythmia, AV block (second- or third-degree), bundle branch block, congestive heart failure, ECG abnormalities, hypotension, palpitations, syncope, tachycardia, ventricular extrasystoles
Nervous System: Abnormal dreams, amnesia, depression, gait abnormality, hallucinations, insomnia, nervousness, paresthesia, personality change, somnolence, tinnitus, tremor
Gastrointestinal: Anorexia, constipation, diarrhea, dry mouth, dysgeusia, dyspepsia, mild elevations of SGOT, SGPT, LDH, and alkaline phosphatase (see hepatic warnings), thirst, vomiting, weight increase
Dermatological: Petechiae, photosensitivity, pruritus, urticaria
Other: Amblyopia, CPK increase, dyspnea, epistaxis, eye irritation, hyperglycemia, hyperuricemia, impotence, muscle cramps, nasal congestion, nocturia, osteoarticular pain, polyuria, sexual difficulties
The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: alopecia, erythema multiforme, exfoliative dermatitis, extrapyramidal symptoms, gingival hyperplasia, hemolytic anemia, increased bleeding time, leukopenia, purpura, retinopathy, and thrombocytopenia. In addition, events such as myocardial infarction have been observed which are not readily distinguishable from the natural history of the disease in these patients. A number of well-documented cases of generalized rash, characterized as leukocytoclastic vasculitis, have been reported. However, a definitive cause and effect relationship between these events and CARDIZEM therapy is yet to be established.

CARDIZEM® CD
Prescribing Information as of October 1992 (2)
CARDIZEM® SR
Prescribing Information as of April 1992
CARDIZEM®
Prescribing Information as of January 1991

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PRESCRIPTION PRODUCTS DIVISION
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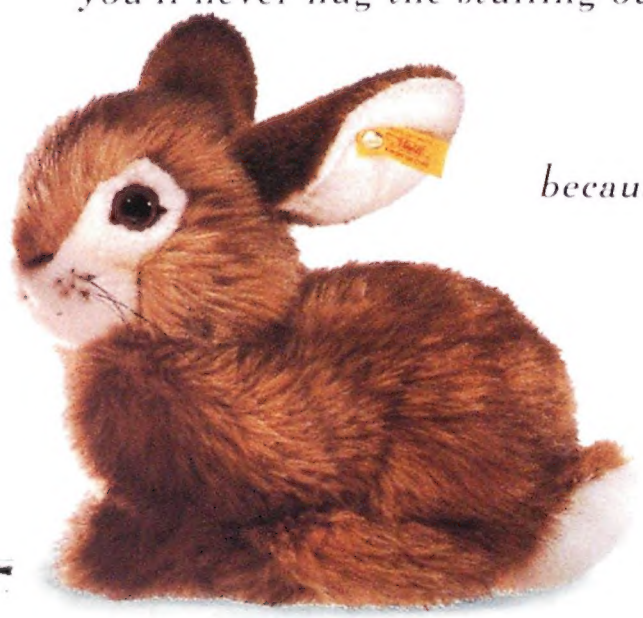

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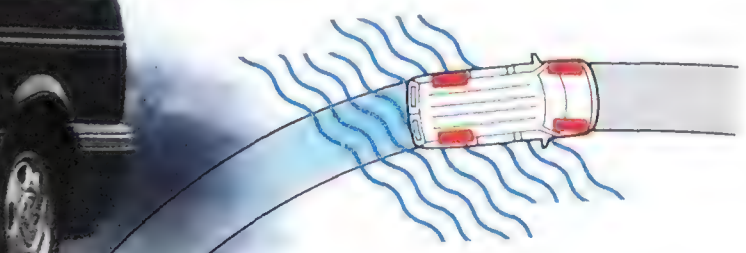

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ONE IN A SERIES

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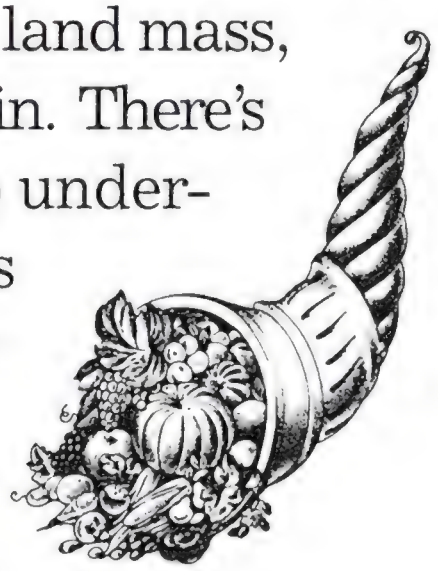

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Smithsonian horizons

The Smithsonian will observe its 150th anniversary with the open welcome to visitors that has always prevailed

One of the heartwarming signs of an approaching Washington summer is the swelling tide of visitors to Smithsonian museums. Dusty station wagons, the rainbow colors of their license plates attesting to journeys from every corner of the continent, can be seen disgorging family members in all directions along the National Mall. Individual option commonly seems to prevail for young as well as old, everyone pursuing his or her own museum preferences after bare agreement on when and where to reassemble. In this spontaneous ebb and flow, encouraged by the absence of admission charges at every entrance, lies a major application of the diffusion part of the Smithsonian's commitment to "the increase and diffusion of knowledge."

What assurances can we give, in this time of yawning deficits, that a shift toward a policy of admission fees is not in prospect? Well, an open-door tradition of nearly 150 years counts for something. To be sure, a demonstration project is under way in some of our facilities, testing the readiness of the public to help meet our needs through strictly voluntary contributions. No one can guarantee that unforeseen exigencies will *never* require our successors to consider harsher measures. But I can say, without qualification, that no such step is now under consideration. We expect to celebrate our Sesquicentennial in 1996 with the same open welcome to visitors from all over the world that has always prevailed.

There are powerful reasons for holding fast to this principle. One is that making the Institution accessible to the widest possible audiences is the only course that is fully consistent with the Smithsonian's founding vision. Fees unquestionably reduce museum attendance. Relevant experience in England suggests that even so-called "voluntary charges," when they are collected at the door, typically reduce the number of visitors by a third or more. Worse, the deterrent is greatest precisely for those newer constituencies with whom museums have communicated least effectively in the past, and who are least able to afford fees of any kind.

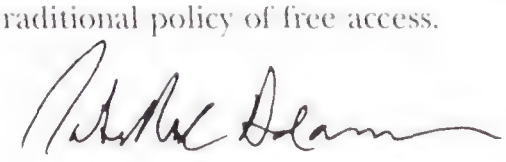
A second reason is that a visit to Washington provides an unparalleled opportunity for education in citizenship. Seeing the conduct of government firsthand, in this beautiful as well as monumental setting, strengthens a core of common experience of inestimable importance for our body politic. Smithsonian museums directly contribute to this objective through their exhibits, but they also are among the principal stimulants of the flow of visitors. With the substantial federal support that the Smithsonian receives, it would be oddly counterproductive to take any step that failed to encourage the widest possible visitation of our national capital.

All of these considerations, however, still leave us with the problem of deficits. There are many "uncontrollables" that drive our operating costs upward more rapidly than either our regular sources of private funding or our appropriations can cover. New exhibitions, portraying the impacts of new knowledge or offering fresh insights into limitations and contradictions in the old, are a particularly heavy drain.

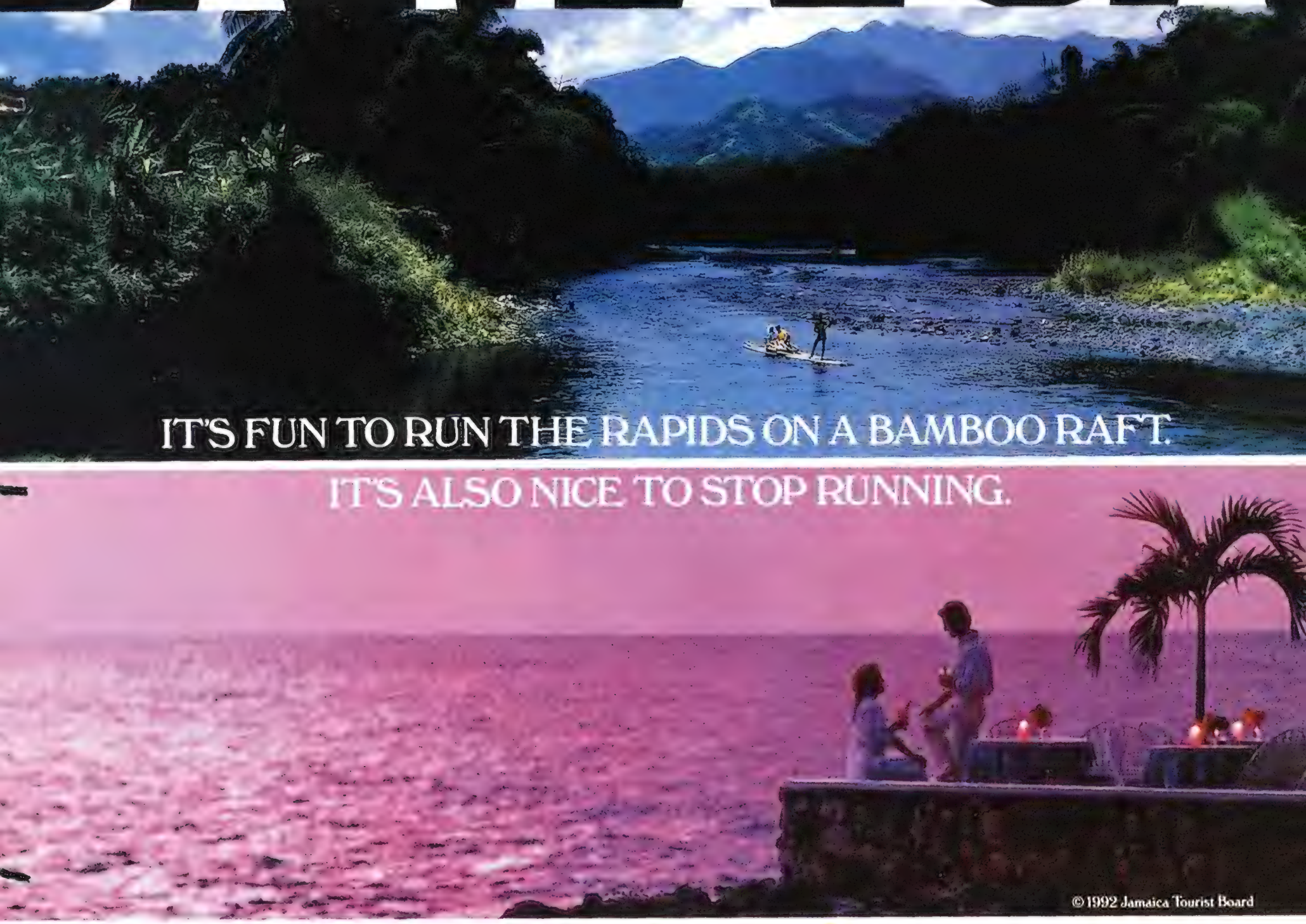
Corporate support, always a critical supplement to our exhibition budgets, now has a more important part to play than ever. Whether it can meet the growing need is by no means certain. Most of the burden of supporting exhibitions has in the past been carried by only a relative handful of great, farseeing firms. As a result of the recession and intensifying international competition, the Business Committee for the Arts now estimates that corporate giving has declined by a fifth—roughly $115 million—over the past three years or so. There has been some tendency for corporate philanthropic bodies, less well endowed than previously, to be displaced by their marketing organizations as sources for museum funding. That raises potential problems of commercialization, against which the Smithsonian, like most other museums, must remain vigilant.

This is a vast area of shifting shades of gray, seldom of starkly constant alternatives. Both the forms and the prominence of corporate identification, in connection with sponsored exhibits, are becoming increasingly sensitive issues. Having to serve more frequently as venues for social events under corporate sponsorship, museums may find their public character and reputation for disinterested scholarship coming into question.

Difficult, carefully balanced trade-offs are called for. At the Smithsonian, as at museums everywhere, we cannot afford to lose final, absolute control over the knowledge-content that is diffused under our imprimatur. But we also cannot afford radically to cut back our exhibition programs in vain pursuit of a supposedly pure principle of noncommercialism. We must work closely with corporate partners to secure their cooperation in maintaining the quality and momentum of those programs. And our highest priority in doing so should continue to be the widening and diversifying of the audiences we draw into our museums with our traditional policy of free access.



JAMAICA



"Can we make it over those rocks?" cried Karen as we funneled into the white water.

"Yah, mon," grinned our raftsman, Gregory, "No problem."

Okay, I said to myself, we've done the rafting. We've done the Blue Mountains. We've done the snorkling.

"Say Gregory," I called, "if we hurry do we have time to drive to Dunn's River Falls this afternoon?"

"Yah, mon," he answered, "but why hurry? This is Jamaica!"

That evening, as sunset purpled the sky, Karen and I sat quietly and listened to the waves washing the shore. I could feel myself getting in sync with their long, slow rhythm.

"Maybe tomorrow we could just sort of hang out on the beach," I suggested.

"Yah, mon," smiled Karen. "No problem."

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EMSME00

Letters to the Editor

Apprentices

Dear Sir: A footnote to your March article: thanks to former governor James Rhodes, a number of vocational schools were built in various Ohio counties.

In one of many programs at Ashtabula County Joint Vocational School, students and instructors build a complete inspected-and-approved house during the school year, gaining real experience in a number of trades. The houses are commissioned by individuals, and the fee pays for the following year's equipment. Students get full academic training; some go on to further education.

The food service department teaches preparation and serving of full meals and banquets, and instructs in portion and cost control. There are other examples in industry, health and agriculture.

Mrs. Helen L. Belz
Andover, Ohio

Dear Sir: I spent over ten years in the shop as an industrial arts teacher and in the trade as a cabinetmaker. It has been my experience that school administrators and guidance counselors consistently steer the academically capable students away from the trades and into college tracks. Many times I have seen skilled students advised not to pursue a trade. One vocational machine-trades program was shut down because it could not get academically skilled students–the guidance counselors used the vocational school as a dumping ground. Ironically, this program could graduate students with greater earning potential than the college programs into which they were steered.

Three years ago I looked at the loss of positions, the aging teaching force, the budgetary restrictions. So now, at age 40, I graduate to begin a new career as an occupational therapist, not because I didn't love teaching but because teaching shop was a career with no future that I could discern.

Joe Barry
Arlington, Massachusetts

Dear Sir: The need to train apprentices into journeymen is exemplified in the first two photographs in your article.

On pages 44-45, in the interest of safety, the bandsaw guide should be closer to the workpiece, and no one should stand beside a running bandsaw, in danger of being slashed by a broken blade.

Then, on page 47, Chris Barto is grinding, not welding. Welding requires a hood with dark lenses, and sparks don't fly in the same pattern as in grinding.

Averyl O. Reed
Oakville, Connecticut

Dear Sir: Your article on vocational education has only one photograph of a young woman at work and scant mention of females elsewhere.

In today's world where over half the population consists of women, many of whom work outside the home, vocational training needs to address females as vigorously as males.

Theresa Heil Trebon
Sedro Woolley, Washington

Bluegrass music

Dear Sir: When I looked at your March cover, I couldn't help thinking of the bronze we have [below]. My brother, Dee Clements, an artist in Loveland, Colorado, did *Passing It Along* in 1988.

Sharon Wiese
Armour, South Dakota

Dear Sir: South Plains College, in Levelland, Texas, has a unique degree program in country and bluegrass. Currently, students from all over the United States and five foreign nations are learning the history of bluegrass, taking individual lessons, performing in ensembles and recording on state-of-the-art digital equipment. These students are being encouraged to consider careers in bluegrass by a faculty that includes three of the four members of the Alan Munde & Country Gazette, which recorded the album you mentioned: "Don't Give Up Your Day Job."

As the nonfaculty member of the band, I can testify that we have all helped forge a community of musicians in the Texas Panhandle whose influence, like the festivals, has helped to spread bluegrass around the globe.

Dave (West Texas Intermediate Slim) Hardy
Levelland, Texas

Dear Sir: Despite Bruce Watson's claim that "establishment" country radio programming disdains such "hayseed" music, bluegrass is alive and well on collegiate FM radio stations. American University's WAMU-FM in Washington, D.C. is legendary for both the quantity and quality of the string band music it plays. Here in the New York area, Columbia University's WKCR-FM has had a Sunday-morning bluegrass show for many years, while Fordham's WFUV-FM and Fairleigh Dickinson's WFDU-FM also provide enough bluegrass to please even the most demanding city-billy.

Steven D. Price
New York City

Roadrunners

Dear Sir: Several years ago, I had occasion to stop at a small motel in rural West Texas. There was a trailer park nearby, with a short-order café and picnic tables scattered about under shade trees. When I was eating breakfast one morning, an adult roadrunner paraded up to the café, proudly carrying a small snake in its bill. It deposited the snake by the kitchen door and stepped back as if to admire its work. The café owner opened the door and threw the bird some bits of hamburger meat, which were quickly devoured. Then off it scampered into the

It's designed to make the most of an invaluable piece of equipment you already have.

Your eye.

A query, if we may.

How do you get a vision that's in your head onto a piece of film not much larger than your average postage stamp?

No, this is not a trick question.

SB-25 with D-type AF Nikkors offers 3D Multi-Sensor Balanced Fill Flash. Also has Slow/Rear Sync, Red Eye Reduction, and FP Flash-Sync up to 1/4000th.

It's what photographers challenge themselves with day and night. In this case: day. Barely.

You see, pro photographer Roger Ressmeyer knew the sun was setting and lighting conditions were changing rapidly. He knew the windsurfer was moving erratically. He knew he only had an instant, or less, to get it. He knew it was almost impossible.

He knew, however, that he had the new Nikon N90. A camera designed to let you walk away with shots from situations you would ordinarily walk away from.

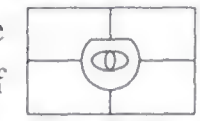
The Nikon N90 has Advanced 8-segment Matrix Metering, with powerful software which analyzes exposure instantly and accurately even in difficult light situations. Instances when you have no time to think, let alone meter. With our new D-type AF Nikkor lenses, which actually incorporate subject distance information into the exposure, Matrix Metering moves into a new dimension. Quite literally. It becomes 3D Matrix Metering.

See the new N90 at authorized Nikon Dealers wherever you see this symbol. For more info on the new Nikon N90, and the exclusive Nikon MasterCard, call 1-800-NIKON-35.

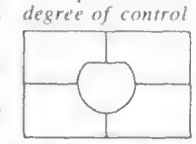
The N90 even knows when you've recomposed. It compares the lighting patterns from your original composition to those in your new one. That way, what you see will be perfectly exposed on film. Ask Roger.

Imagine the same technology in flash photography. By way of the world's only 5-segment TTL flash sensor, the Nikon N90 used with our SB-25 Speedlight can perform Matrix-like analysis of the scene with Monitor Pre-Flash for ideal flash output. So you can get shots you would never have dreamed of trying before. A severely backlit portrait. A bride in white, running through a shower of rice as the sun sets.

The Nikon N90's new advanced CAM 246 Autofocus Detection System focuses accurately in an instant. It has a Wide-Area Focus Detection Sensor that's nearly 20% of the frame width, for more creative composition, even if the subject is off center or moving. Like a windsurfer at 20 knots for instance.



With an 8-segment ambient Matrix Meter, remarkably powerful Nikon software, as well as the world's first five-segment TTL flash sensor, the N90™ provides you with an unprecedented degree of control



And what's more, with the Nikon Data Link System, you can connect the new Nikon N90 to a Sharp® Electronic Organizer, so you can control the camera remotely and customize operations for the way you like to shoot.

Yet another accessory with creative features is the MF-26 Multi-Control Back. With it you can auto-bracket ambient exposure, and auto-bracket flash output, among other things. So that you can rest assured you've got the shot.

Combined with this new technology, there is a solid connection to Nikon's past. Our timeless F-bayonet mount accepts nearly 80 Nikkor lenses. Including our new D-type AF Nikkors and high-speed AF-I Nikkors.

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Of course there's one thing this camera can't give you. The vision inside your head. The idea that sparks a feeling. The thought that provokes an inquiry. The brainchild that makes someone say "man, what a picture."

That's up to you. Question is, which photographic tool are you going to choose to turn that vision into reality?

{The Nikon N90 System.}

You would imagine that shooting a moving windsurfer at dusk from a rocking boat would be sheer hell. But with the N90's innovative 3D Matrix Metering, CAM 246 Wide-Area Autofocus, Multi-Sensor TTL Flash with the new SB-25 Speedlight, and a 35-70mm f/2.8 D-type AF Nikkor lens, Roger Ressmeyer made the experience pure paradise. Then again, he was shooting in Hawaii.

©1993 Nikon Inc. Nikon Data Link System available mid '93. Sharp® is a registered trademark of Sharp Electronics Corp.

brush. The owner told me this was a regular ritual, occurring nearly every evening and some mornings as well.
L. E. Hoefgen
Austin, Texas

Dear Sir: In the 40 years I lived in Antelope Valley in the Mojave Desert, a roadrunner often passed through my yard. If I happened to be driving out as it was crossing the highway, it would toss me an offended look, spread its wings and scurry across, then turn and stare at me, as though to say "How dare you!"

One day my husband found a roadrunner–we did not know whether it was "ours"–floating in a nearby pool, fished it out and brought it home. After trying to dry its feathers, he told me to get the whisky and poured a few drops into its beak. The bird opened its eyes, looked at us, quickly spread its wings and flew right over the fence.
Rose de Haulleville
Burbank, California

Luis Jimenez

Dear Sir: In the late 1950s or early '60s, living in Austin, Texas, I asked an art professor at the university to recommend a student who would make a figure of Saint Francis for my garden. He suggested a promising youth who complied promptly. I have carried this figure through several moves in Austin; it is now in my southern Louisiana garden.

After reading your article I telephoned Luis Jimenez in Hondo. He immediately remembered having done this piece and quoted how much he had been paid: the total sum of $35, in two installments.
Alfred C. Speyrer
Grand Coteau, Louisiana

Dear Sir: Some years ago Jimenez's imposing *Steelworker* was exhibited as part of the annual Pittsburgh Three Rivers Arts Festival, with the original title *Hunky Steelworker.*

In these parts, "Hunky" is an appellation guaranteed to create heartburn among those to whom "Eastern European" is the politically correct term. The offending title was subsequently expunged from the sculpture, which later made a short journey across the Monongahela River to Station Square, where it reposed for about a year.
Bill Baker
Mars, Pennsylvania
Jimenez had heard steelworkers use the term. As soon as he knew it was a slur he arranged for it to be removed. Ed.

Grand emporiums

Dear Sir: Only 30 years ago a pair of teenage girls from Alexandria, Virginia, could take the bus into Washington, D.C. for a day of shopping at Hecht's and Garfinkel's, where the dark, polished woods, the attentive sales staffs and that special golden light present *only* in a big-city department store made us feel more grown-up than any other experience possibly could. I regret that my children, having access only to the glaring-bright, teen-oriented mall stores of today, will never have the heady luxury of that lady-for-a-day experience.
Katherine Kluender
Monticello, Arkansas

Dear Sir: Daniel Cohen's article flashed me back to the mid-'20s when my mother would take me, a boy of 9 or 10, on Saturdays to Marshall Field's fourth-floor toy department and its "Explorer's Club." There, for a couple of hours, I was entertained by entire shows so mother could shop without having to worry about me or having me tag along.
Jerome Gordon
Hanford, California

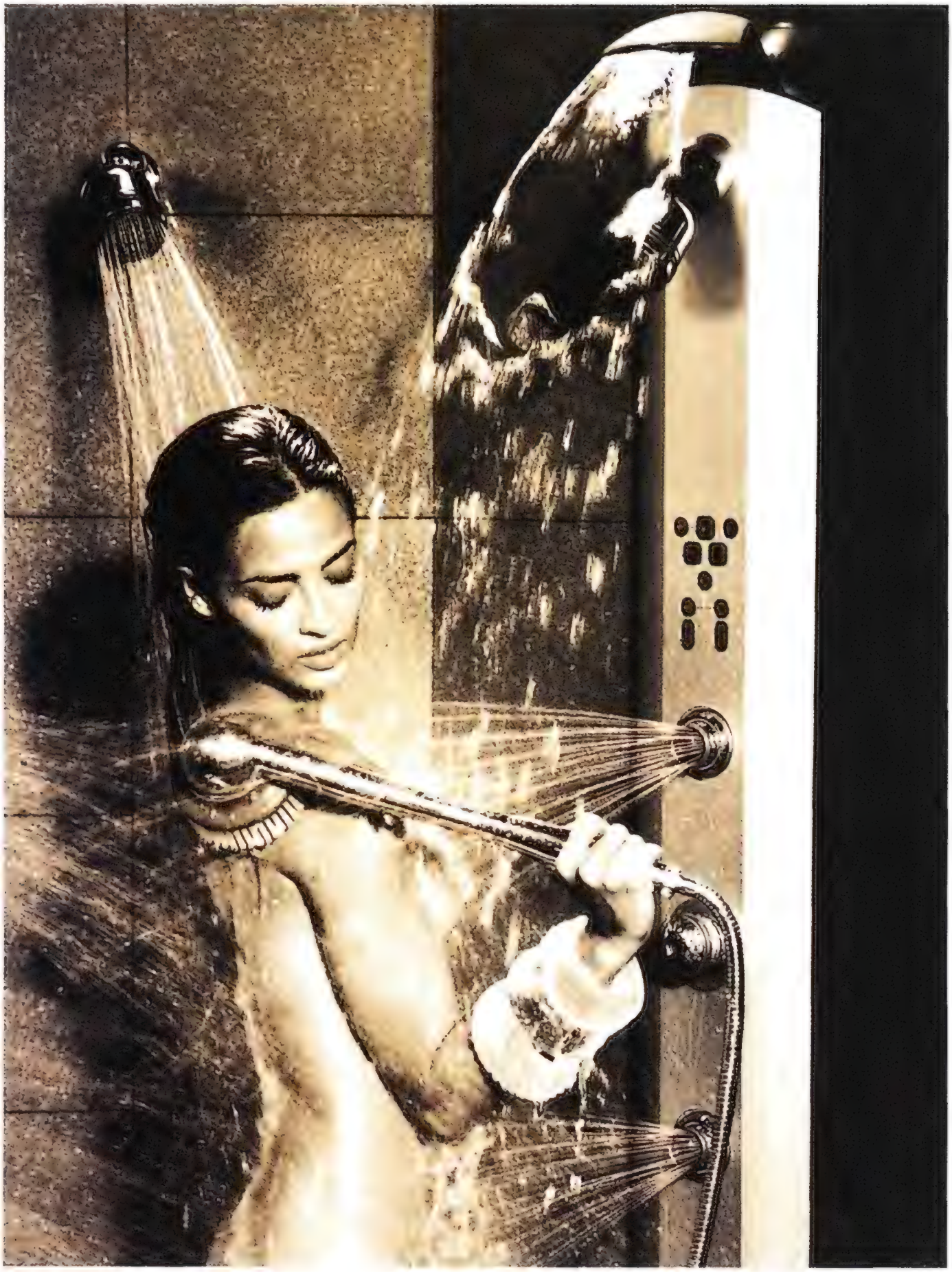
A techie's toast

Dear Sir: This former Heathkit fan was not teenage nor postadolescent nor male. When my husband died in 1971, a friend suggested kit building as balm for the soul, a soporific for sleepless nights and a supplier of constructive thoughts to replace the sorrowful ones crowding in. We had never had a color TV, so I started my kit building with Heath's 21-inch set. Directions were precise and detailed. Weeks later I had a color TV that worked. Today, meditation, group therapy and so forth soothe the aching heart. My many Heathkits worked for me.

My two daughters, home from college, amazed at what I had wrought, immediately joined the club of Heathkit builders: three females, sharing one cheap soldering iron and muffin tins for components, and loving it.

I took the back off my new mass-produced TV the other day. What a sterile thing it is. There's practically nothing at all there. No wonder Heath went out of the kit business.
Mrs. William B. Hawkins
Cuyahoga Falls, Ohio

As I See It #19 in a series
Uli Rose
"Let It Pour"
B/W Photography, Sepia Toned



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Around the Mall and beyond

Closed since 1988 for remodeling, the fine old Freer Gallery reopens, "new" but still as venerable as ever

After four and a half years of being cluttered with plywood barriers, networks of orange tape and the rumblings of heavy construction equipment, the Freer Gallery of Art is reopening to the public on May 9th. This graceful, understated museum was built in 1923 to hold the collection of Charles Lang Freer.

Mr. Freer didn't live to see that first debut of the establishment he had dreamed of, financed and helped plan. He died in September 1919, knowing that the building of his gift to the nation, halted by our involvement in World War I, had resumed and was all but completed. It only awaited the storage and proper display of his American paintings, of the famed and fabled Peacock Room and of his Asian paintings, drawings and sculptures. For a sampling, see *Highlights continued* on page 27.

Freer's deed of gift contained restrictions about the use of his collection and his building: no items but his own were to appear in the Freer Gallery; none were to be shown elsewhere; none were to be removed; nothing new was to be added. (That last one was eased just before his death to allow for additions to the Asian collection.) Museum people quail at such conditions, but Freer was adamant that his museum "maintain the harmony of the collections to which I have given so much attention."

Reading that, you might picture a crotchety old man, indifferent to the broad purpose of a museum and blind to its future needs. But according to a handsome new book, making its appearance at the same time as the renovated museum, Charles Freer was a thoughtful, farsighted philosopher who wrote that "all art worthy of consideration is universal" and sought to keep his part of it forever unified.

Freer: A Legacy of Art is published by Harry N. Abrams, famed for beautiful art books. Its pages are rich with illustrations of items from the collection, and intriguing with archival photographs and sketches. And its text tells the story of a shy, aloof man who started from nothing, made millions, then changed careers to explore the world of art and become one of the world's great collectors. Writers Thomas Lawton, senior research scholar at both the Freer and the Sackler galleries, and Linda Merrill, associate curator of American art at the Freer, reveal a man that only the late 19th century could have produced. Imagine a small-town boy from up-country New York who started work at 14 to help support his family, made friends with a railroad man, began

building freight cars, pulled off a consolidation of railroad car companies, and at age 45 retired to become a meticulously private millionaire, enraptured by art.

The Horatio Alger theme? Then why didn't he marry the boss's daughter? Merrill says that he may have felt "an incompatibility with the educated, independent women who were coming into their own at the turn of the century." She also notes that Freer's old Washington friend Agnes Meyer "believed that a family history of syphilis" kept him single.

At any rate, he entered a late love affair with art, started collecting prints, suddenly caught the full impact of James McNeill Whistler (SMITHSONIAN, April 1984) and in 1890 visited the artist in London. The amity that grew between the contentious, rebellious, bad-tempered and often poverty-stricken expatriate painter and the conservative, modest, rather naive nabob from the heart of American capitalism is an unlikely–and a great–story.

Soon after establishing his Whistler connection, Freer set about decorating his newly built house in Detroit. Interested primarily in American art, he used the advice–and the works–of three notable American artists, Dwight Tryon, Thomas Wilmer Dewing and Abbott Handerson Thayer.

Lawton tells of Freer's trips to Asia, starting in 1894, to learn the intricacies of the region's art–and the ways of its dealers–and to begin serious collecting. He started as a mere tourist, planning his itineraries with heavy reliance on guidebooks. He returned again and again, traveling more widely and with more sophistication, purchasing art with ever-growing knowledge. He gradually learned to trust certain dealers and to see through others. He reacted physically to one phony, angrily tossing him from his room. Typically he considered this loss of temper too barbaric to describe in detail. On his final trip to Asia, in 1910, he was treated with deep respect and hosted by the friends he had made there.

A children's book, *The Princess and the Peacocks*, written for the reopening by Merrill and Sarah Ridley of the Freer and Sackler galleries education department, takes up the story of Whistler's famed Peacock Room, still the centerpiece of the Freer Gallery. The sophisticated writing, wry humor and splendid illustrations (by Tennessee Dixon) make the book a good read for adults as well.

The "princess"–in a painting on the wall of what will become the Peacock Room–tells the very funny tale of the prolonged fracas between Peacock Room patron Frederick Leyland and artist-decorator Whistler, whom Leyland charged with ruining his expensive leather-walled dining room. Fortunately for us, in the end Whistler and his peacocks won. While dashing off on one of his trips to Asia, the energetic Freer found time to track down this fabled London dining room and finally to buy the whole thing.

The "Blue Room," as Freer called it, was reassembled at his Detroit home. But with a little urging, he began thinking of giving his entire collection to the nation. A museum would be the perfect place to honor Whistler (who had died in 1903), and the Smithsonian Institution was the obvious place for a new national museum. The only hitch was the Institution's major commitment to science. Its then Secretary, Samuel Langley, was an astronomer and experimenter in aeronautics. He was soon replaced by Charles

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CUNARD

P61

Charles Lang Freer's bequest gave the Smithsonian its first art museum.

Walcott, a geologist. Would such scientific scholars stand for maintaining an art museum?

The Smithsonian Regents, writes Merrill, set up a committee including Langley and Alexander Graham Bell to visit Detroit and to look over what the Institution was being offered. "What they do not know about art," noted Freer uneasily, "would fill many volumes."

But when President Theodore Roosevelt got into the act, the Freer Gallery was as good as built. "Can't you come down here and spend a night at the White House next week?" he wrote Freer. "I desire to speak to you about the magnificent gift you desire to make to the Government and which I wish to see accepted without haggling or quibbling." Freer went, had dinner with the President and various biggies, and the wheels began to roll. Alexander Graham Bell pushed the official acceptance of the gift through governmental channels in 1906.

The book's final chapter—one which is most applicable to this month's event—deals with the building of the Freer Gallery. For the architect, Freer's friend Stanford White seemed a natural. But at Madison Square Garden in 1906, a bullet fired by Harry Thaw, whose wife, showgirl Evelyn Nesbit, was having an affair with White, took him out of the running. Freer himself was busy studying American museum buildings, and he made sketches of the ways his collection, including the Peacock Room, might be presented.

He had found European museums "dungeon-like and mere tombs for the treasure they overshadow," adding, "if the artists . . . have any influence with the devil the souls of the architects are surely being well roasted below. I would like to shovel on some fuel myself."

It was an American architect, Charles Platt, whom Freer finally chose. The Smithsonian Regents allotted him a plot of land southwest of the Castle, the original Smithsonian building which, they indicated to Platt, would eventually be razed. Fortunately, that plan failed. But beside the huge old sandstone landmark—deplored by many esthetes back then—arose an elegantly simple Renaissance-style building.

It was typical of Charles Freer that neither his name nor his portrait was to be displayed on or in his museum. Yet, as Merrill writes, "the Freer Gallery of Art was so thoroughly imbued with the spirit of the founder that one acquaintance was inspired to call it 'Mr. Freer's Autobiography.'"

Today, after all the renovation, it still is. The central courtyard has been restored in keeping with its original design and offers visitors a pleasant visual respite for contemplating the works they have seen in the galleries. The Mall-side entry foyer, into which a gift shop used to be crowded, is now the open, welcoming hall it was meant to be. Elegantly illuminated bookshelves and display cases fill the new shop, one level below the exhibits. State-of-the-art lighting and new exhibit cases have been carefully designed to respect the style of the original Freer. And outside, major relandscaping invites us to pause a few minutes to enjoy the building's exterior.

The Freer now has more room for storage and study, and a new exhibit area downstairs leads to the neighboring Arthur M. Sackler Gallery of Asian art. But Charles Freer's wishes remain sacrosanct. No item leaves his collection for even a brief visit to the adjacent museum, which shares the same interests. The eastern end of the new exhibit area, said the guide who led me through, "is our 'Checkpoint Charlie.'"

It's good to have our first art museum back in operation with its much-needed improvements. It's especially good to have the new book by Lawton and Merrill to remind us of our strangely complex benefactor—not a man to know easily, but firmly loyal to his friends and ever-devoted to the love of his life.

Edwards Park

Phenomena, comment and notes

Gardeners who understand nature find themselves working with it instead of fighting a never-ending war against it

By now just about everyone with access to dirt is happily digging and planting, making their bit of the planet into a personal vision of that Garden we dimly remember. Some concentrate on flowers, aiming for successive waves of bloom so the yard is washed with color from frost to frost. Others know there is nothing like a tomato or ear of corn picked just minutes before hitting the plate; they will work uncountable hours for those minutes of inimitable pleasure.

I'm a dirt man, myself. Preparation of garden beds or a new home for a transplanted seedling is the most satisfying part of it all. It is true that there are few things more pleasant than walking along a row in the early morning, popping peas out of their pods and into my mouth. But when I think of gardening, I think of making compost, begging manure, spreading mulch in the faith that ten years of manual labor will turn recalcitrant clay into something like loam. In seasons past, on my good days, I would double-dig beds so that subsoil ended up on top, to be transformed by all the organic matter I piled on. Most of the time I would use a tiller like a food processor, churning the soil to a fine powder.

Now I am just beginning to realize that brute force may not be the way to go. It just might be better to understand and work with nature rather than overpower it. My thinking seems to be evolving along with that of gardener and writer Sara Stein. In 1988 her book *My Weeds* was published, an account of how gardening had led her to a sustained study of botany, an appreciation of the weeds she had been fighting and finally détente, a working out of a modus vivendi.

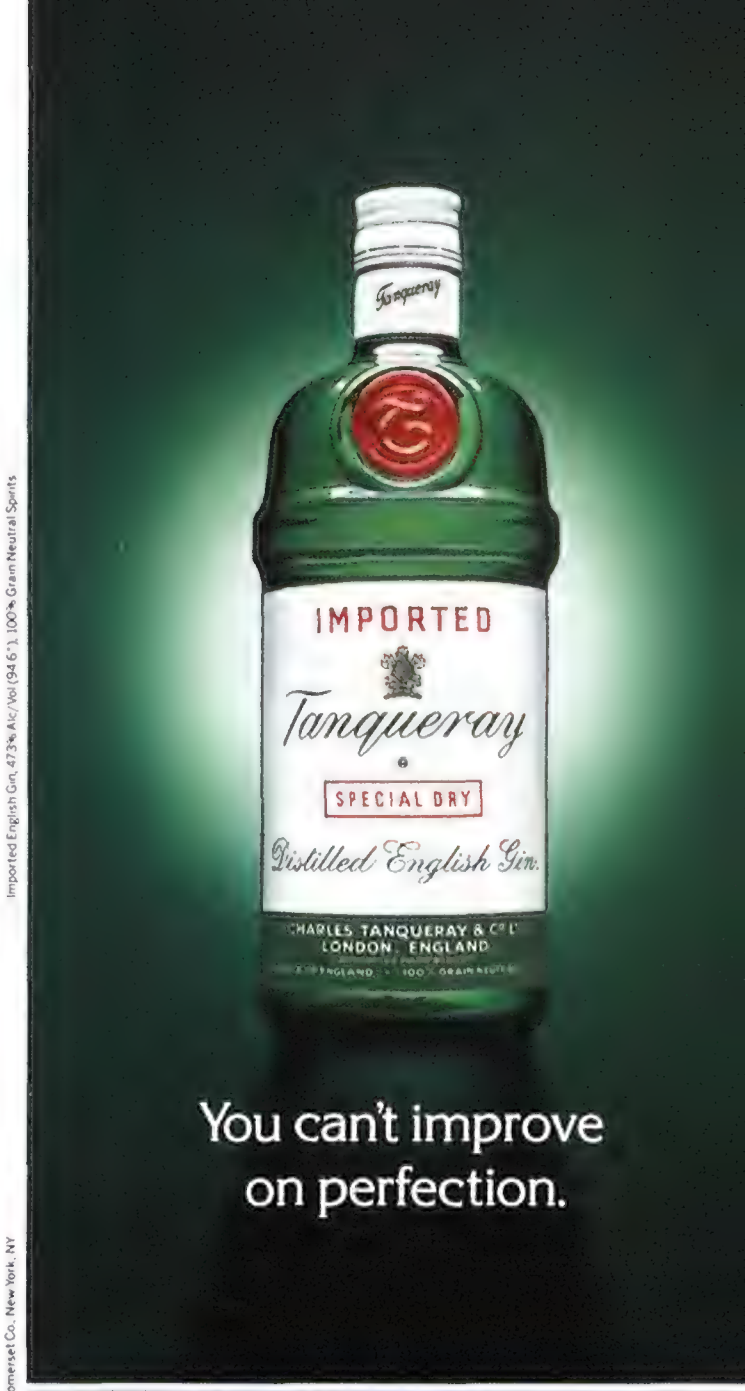
Her effort to understand her garden made me remember a revolutionary book published by Rodale Press in 1978, Masanobu Fukuoka's *The One-Straw Revolution*. Trained as a microbiologist, and an expert on plant pests, Fukuoka had a revelation at the age of 25, gave up his government career and went back to his father's farm in southern Japan. There he learned to produce rice and winter grains, and fruit from a 12-acre orchard without plowing, cultivating, fertilizing or using pesticides. He arrived at what he calls natural farming, he said, by asking "How about *not* doing this? How about *not* doing that?" His yields now rival the best produced by conventional Japanese agriculture with far less work and money invested.

In the spring, Fukuoka broadcasts rice seed over the rye and barley that has grown as a winter crop. After the winter grain is harvested and threshed, he spreads the leftover straw over the field. In the fall, he sows clover seed amid the rice (it fixes nitrogen and fertilizes the field) and then more rye and barley. The rice is harvested, and next year's rice seed is sown and straw put down. Spiders and toads keep the leafhoppers (a major rice pest) under control.

His orchard had been planted in red clay, on land ruined by potato farming. He planted acacia trees, which also fix nitrogen and attract aphids, which in turn attract ladybugs. When the latter are finished eating the former, they move into the fruit trees, devouring mites and both arrowhead and cottony-cushion scales.

At first Fukuoka tried to improve the soil by burying straw and ferns, which he carried down a mountain in 90-pound loads. Then he planted the acacia trees, clover and alfalfa, as well as a radish whose roots could penetrate ground so hard a shovel could not pierce it. As the soil improved, weeds appeared. Fukuoka scythes in late summer, then puts down more clover seed.

Now Sara Stein is working in that same direction, not to grow crops but to attract wildlife to her exurban home. Last month Houghton Mifflin published her latest book, *Noah's Garden*, in which she relates a revelation as profound as that experienced by Fukuoka. She describes with zest how she and her husband transformed their six-acre parcel of former pasture and field that was rapidly growing back to woodland. They ripped out



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brush and brambles, pulled vines, mowed the reeds by a pond, and planted lawns and geometric garden beds. It was beautiful and, she slowly realized, almost dead. Many of the birds that had been there, including a family of pheasants, were gone. The grasshoppers were gone, as were the rabbits and a woodchuck family that had lived below a boulder. Frogs no longer croaked along the shores of the pond.

Longing for the more natural world she had known as a child, Stein "unbecame" a gardener. She stopped most of the mowing, leaving only paths that open here and there into clearings. She added fruiting shrubs to garden beds, then joined the beds with additional plantings and brought them toward outlying woodland via thickets, groves and hedgerows. Stretches of sterile lawn were planted with native grasses and wildflowers. Now she has meadowlarks and bluebirds, and more butterflies than she can identify; frogs call from the pond once more.

Having six acres to work with, Stein is a special case. But she is eloquent in saying that everything she has done can be done on a quarter-acre lot. Homeowners can change the suburban pattern of "flat lawns and bumpy shrubs, starlings and dandelions. . . . Everywhere the soil is poor, water scarce, growth weedy, succession sick, diversity a list of missing plants and animals." Anyone, Stein argues, can set aside a portion of their yard in a way "not alien to the theoretical ecosystem in which one lives." With native plants and some thought, she says, "the suburban landscape can be teased to control its own pests, maintain its own soil, conserve its own water, support its own animal associates and altogether mind its business with minimal interference from us."

While she was writing the book, in fact, she received a letter from a man in Oregon, a fan of *My Weeds*, who had done just that. On a one-eighth-acre lot in a tract-house development, Michael McKeag has planted a pocket woodland in one corner. The grove is edged with serviceberries and currants, hawthorns and hazelnut trees, a hedgerow that continues along the rear boundary and piles up in the other corner. The transition from hedgerow to lawn is a meadow of wildflowers and native grasses. Sedges and rushes surround a small pool fed by an artificial stream; a small bog takes up one side of the pool.

It is Stein's dream that when a homeowner transforms a lot in such a way, neighbors will decide it is more attractive than the usual lawn and hedge. When corner woodlands begin to abut one another, and hedgerows spread from both sides of a property line, the effect is multiplied. A neighborhood of such landscaping becomes a mosaic ecosystem. At the end of an early chapter, she summarizes her feelings:

A tiny hummingbird is an added bonus in a garden that harmonizes with nature.

"We cannot in fairness rail against those who destroy the rain forest or threaten the spotted owl when we have made our own yards uninhabitable. Yet how quickly we could grow this land, spangle it with blazingstars, stripe it with red winterberries and white summersweet, let it wave again with grass!"

Noah's Garden is one of the latest, most eloquent additions to a long tradition. For years the government has sold pamphlets on how to attract birds to a garden. In the past decade several excellent books on the subject have appeared. The National Wildlife Federation has a long-running program on turning backyards into wildlife habitat. By early this year, 11,600 people had received certificates from the NWF stating that their yards do indeed provide food, water and shelter.

While I was reading *Noah's Garden*, I came across another book that will forever change the way I feel when I find myself anywhere near dirt. David Bodanis, a mathematician by training, started 10,000 cocktail party conversations in 1986 when he penned *The Secret House*, a compilation of all the unheard and unseen events that go on in a typical house in any 24-hour period.

Last year, I now find, he came out with the sequel, *The Secret Garden* (no relation to the children's classic), and it is even more astonishing than the earlier work. On a sunny lawn, for example, ants excrete packets of nitrogen as they go about their business, fertilizing the grass. When a group of aphids on a rosebush are attacked by a ladybug, they inject a chemical into the rose's circulatory system that warns other aphids on other parts of the plant of the attack. A cucumber seedling newly introduced into a garden will squirt poison gas from its roots, trying to make room for itself. Surrounding plants, however, will piece together a counterpoison. The cucumber then opens hatches on its roots, collects and concentrates the gas, and then fires it right back at the defenders.

What really stunned me, though, was learning just what my bull-in-a-china-shop approach to gardening was doing to that soil I so lovingly prepared. I had understood in a vague way how important is the space between soil particles through which air and water move. But little did I dream . . . Here is Bodanis:

"The amount of life in even a tiny, half-inch-thick pinch of soil from your lawn is difficult to grasp. There will be millions of miniature insects, and 5 billion or so bacteria—about as many as there are human beings on earth. It seems impossible, since from our usual perspective there's no way so many separate living things, however tiny, could cram into such a small space. But think of the pinch you hold in your palm as a vast apartment block. On all the ultra-narrow floor levels, there's space for microscopic creatures to live. A pinch of garden soil just a half-inch high will have space for over ten thousand such floor levels inside.

"When all those floors get partitions, vertical 'walls' going up to divide them into separate rooms, the total surface area contained inside a single ounce of clay comes out to about ten acres . . . ."

He then goes on to describe in vivid detail the extraordinary creatures that live in these passageways. The upshot for me is that it now will be very difficult to fire up a tiller and destroy so marvelous a construction. Sara Stein arrived at a similar conclusion, ending one chapter: ". . . we should respect and trust our soil as an ecosystem which, if fairly treated, will thrive with minimal interference: . . . the gardener's role is neither to take nor to give; it is to plant."

This is going to be a tough year on the gardening front. I'm going to try to make myself follow that most difficult counsel for any gardener—or any human being, for that matter: "Don't just do something, stand there!"

John P. Wiley jr.

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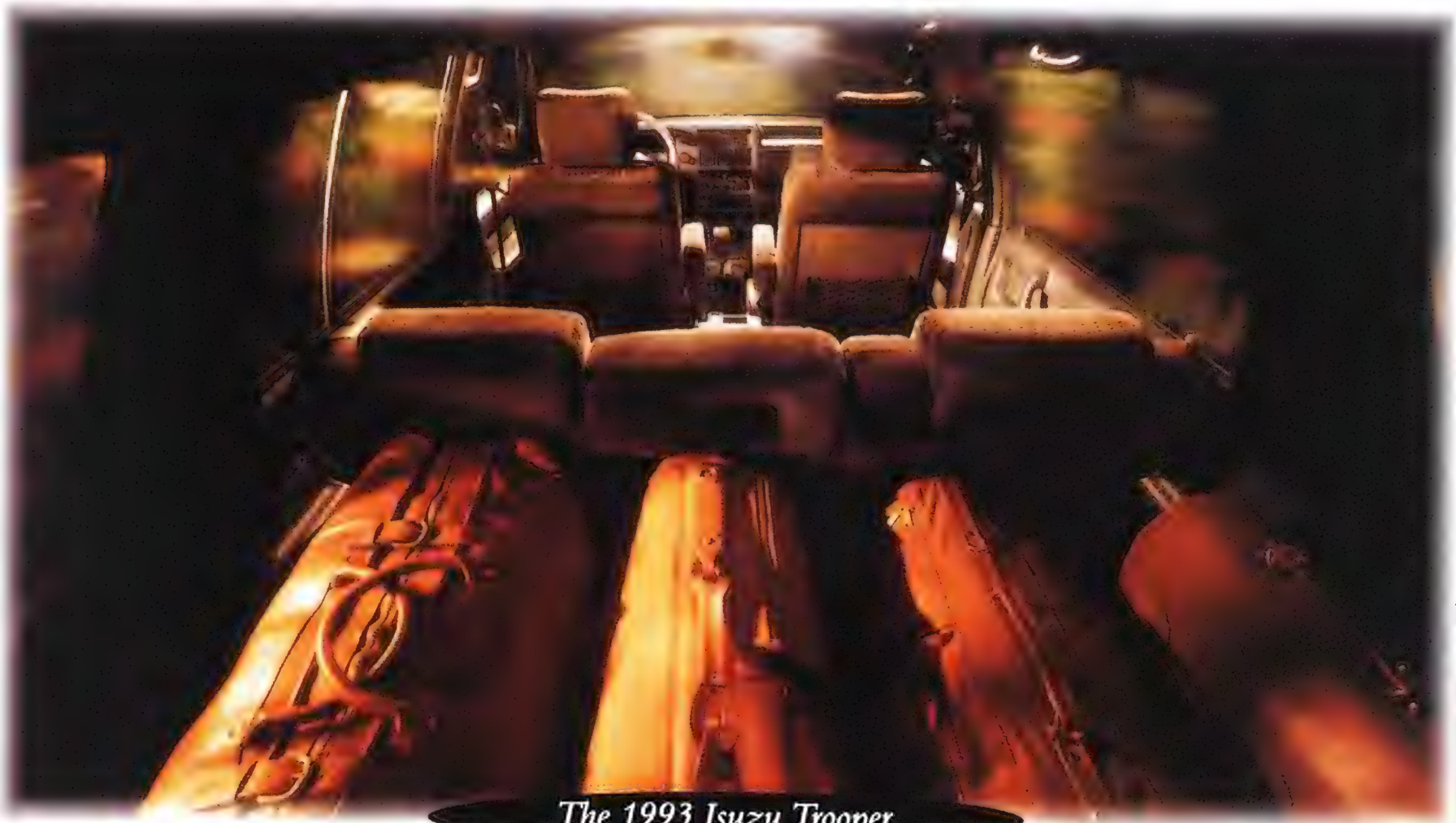

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Smithsonian highlights

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Asian/Pacific American Heritage Month

A variety of activities and programs are planned for May. For recorded information, call (202) 357-4574 beginning May 1.

Special May exhibits, events

Freer Gallery of Art
The Freer Gallery of Art reopens May 9. Renovated galleries feature Asian and 19th- and early 20th-century American art. See *Highlights continued* (page 27).

National Air and Space Museum
Blueprint for Space (May 5 through November 7) Exhibit showcases collection of artworks of "space imagery" commissioned in 1950s by *Collier's* magazine.
Hidden Hawaii (6 P.M. daily) New Imax film features breathtaking underwater footage.

National Museum of American History
The Past as Memory and Model (through June 28) Display on Jewish culture commemorates opening of the U.S. Holocaust Memorial Museum.
Beyond Category: The Musical Genius of Duke Ellington (through September 6) Exhibit looks at the 50-year career of the celebrated composer and bandleader (see page 62). Manuscripts, rare photographs, artifacts, film clips.

National Museum of Natural History
Saynday was coming along...Silverhorn's Drawings of the Kiowa Trickster (through May 31) Drawings by the 19th-century American Indian artist.
Seeds of Change (through May 23) Exhibit explores changes brought about by exchange, begun 500 years ago, of five "seeds"–sugar, corn, potatoes, horses and disease–between Old World and New.

National Zoological Park
Amazonia New permanent installation is a microcosm of the world's largest rain forest and river habitat.

Hirshhorn Museum & Sculpture Garden
Directions–Alison Saar (through June 27) Themes and archetypal figures from contemporary African-American culture are focus of mixed-media wall pieces and life-size figures by New York artist.

National Portrait Gallery
American Art at the 1893 World's Fair (through August 15) Exhibition features 100 of the American paintings and sculptures that were displayed at the 1893 World's Columbian Exposition in Chicago, including works by John Singer Sargent, Thomas Eakins and Winslow Homer.
"The Family 1976": Richard Avedon's Portraits for Rolling Stone (through June 6) Portraits by the famed photographer capture America's most powerful figures of the Bicentennial year.

National Museum of American Art
American Impressions: Masterworks from American Art Forum Collections, 1875-1935 (through July 5) Masterpieces by such American painters as Albert Bierstadt, Childe Hassam, Georgia O'Keeffe and Edward Hopper.

Renwick Gallery
American Wicker (through August 1) Exhibition traces the history and stylistic evolution of American woven furniture from 1850 to 1930.

Arthur M. Sackler Gallery
The Golden Age of Sculpture from Sri Lanka (through September 26) Exhibition of ancient masterpieces of bronze casting.

National Museum of African Art
Astonishment and Power: Kongo Minkisi and a New World Resonance (through January 2, 1994) Exhibition explores both the *minkisi* tradition of the Kongo peoples of central Africa and the contemporary art of Renée Stout.

Anacostia Museum
Body and Soul: The Alvin Ailey American Dance Theater (through June 13) Exhibition celebrating the 35th anniversary of the dance company features costumes, posters, programs. Designs by Romare Bearden and Randy Barcelo.

International Gallery, S. Dillon Ripley Center
The Egypt Story: Photographs by Fred Maroon (through June 13) Images document the land, the architecture, the people.

Cooper-Hewitt Museum (New York)
Czech Cubism: Architecture and Design (through July 25) Retrospective of Cubist-inspired architecture and design features drawings, furniture and metal objects.

Exhibition catalogs

Catalogs available currently include:
Revisiting the White City: American Art at the 1893 World's Fair ($60/$35 paper)
Astonishment and Power: Kongo Minkisi/ The Art of Renée Stout ($34.95 paper)

To order, send check or money order to Smithsonian Museum Shops, 8308 Cinder Bed Road, Newington, Virginia 22122. Include 15 percent of purchase to cover postage, handling (minimum, $1.75).

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here is a May exhibit:

•Fremont, California (May 1-June 6) *Capturing the Spirit: Portraits of Contemporary Mexican Artists*, Olive Hyde Art Gallery.

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The Freer Gallery: a legacy of art

The abundant riches of the Smithsonian museum are back on view, reinstalled in newly refurbished, expanded quarters

Japanese tea bowls of elegantly glazed stoneware, Chinese paintings on silken scrolls, Persian manuscripts rendered in radiant color, Buddhist sculptures of bronze and stone, American harmonies painted in luminous hues.

The long-anticipated moment is here. On May 9, exactly 70 years to the day since it opened as the Smithsonian's first fine arts museum, the venerable Freer Gallery of Art reopens its treasury of Asian and American art.

After extensive renovation, the museum once again presents its collection, bequeathed to the Smithsonian by industrialist Charles Lang Freer (see *Mall*, page 18). Some 27,000 works are housed here now (the original bequest left 9,000), but only a small percentage can be exhibited at any one time. The Gallery's Asian collection is acknowledged to be one of the finest in the world, and the museum's repository of 19th- and early 20th-century American art includes the most important assemblage of works by painter James McNeill Whistler.

"My great desire has been to unite modern work with masterpieces of certain periods of high civilization harmonious in spiritual suggestion," wrote Charles Freer to Smithsonian Secretary Samuel P. Langley.

In its elegant displays of works that range in texture and color from the luminescent tones of an American seascape to the warmly glazed surface of an Islamic vase, the Freer embodies that desire. Charles Freer felt that the works in his collection reflected a common artistic impulse, that they were all harmonious in esthetic quality. "His wish to reveal commonalities across cultures continues to inform the presentation of works of art in the Gallery," says Freer and Sackler Gallery director Milo Beach, "as does his mandate to promote 'high ideals of beauty.'" The newly refurbished Freer does honor to its founder's remarkable legacy.

Diane M. Bolz

Late 15th-century *Portrait of a Painter*, from Turkey, uses color, gold, on paper.

Bronze ritual food container, from 11th-century B.C. China, bears mask image.

Shaped like a flower with four petals, enameled box is from India, c. 1650.

Japanese folding screen (detail) is by 17th-century master Tawaraya Sotatsu.

Tenth-century glazed earthenware bowl from Iran has a moralizing inscription.

Winged Figure (detail) is by American artist Abbott Handerson Thayer.

Hammered gold back of Chinese Tang dynasty mirror reveals leaflike designs.

Large Japanese incense box from 15th century is of lacquer on carved wood.

Chinese silk handscroll *Wind and Snow in the Fir-pines* (detail) is by Li Shan.

Deep-red copper pigment outlines lotus design on Korean wine ewer, c. 1250.

Royal hunting scene adorns this silver and gilt plate from fourth-century Iran.

Porcelain dish from Japan, c. 1650, has clear glaze and enamel decoration.

Lotus flowers decorate Chinese Ming dynasty cloisonné incense burner (left).

Stone frieze from second- or third-century Pakistan depicts life of Buddha.

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By Richard Conniff

From *Jaws* to laws–now the big, bad shark needs protection from us

Sleek blue shark glides just below the water's surface. Millions of blues may die each year in fishing nets.

Shark populations have been hit hard lately. It remains to be seen whether tough new conservation measures will help them recover

On a glorious morning last October, a surfer named Rick Gruzinsky was drifting off the Hawaiian island of Oahu, gently rising and falling as he waited for his wave. A large green sea turtle paddled by. There was a light breeze. Gruzinsky noticed colors and swirls underneath him. He thought it might be the turtle again, or a shallow coral head. Then the shark hit, lifting the surfboard out of the water and flipping it.

It was a tiger shark well over ten feet long. With its teeth sunk into the bow, the huge creature shook its head once and then again, snapping off a chunk of fiberglass. "I remember distinctly seeing the eye just below the water level and the big round snout," Gruzinksy told a reporter later. "[It] was trying to swallow the piece, and I remember looking into . . . the soft white part of the mouth." Then the shark sank slowly out of sight, leaving Gruzinsky, who amazingly suffered only scratches, to paddle 150 yards to the beach.

Two weeks later, a shark picked an 18-year-old out of a group of body-boarders off Oahu. He bled to death on the beach. Earlier in the year, also off Oahu, a surfer disappeared, leaving behind a board with a chunk bitten off. A few months before that, a tiger shark fatally mauled a woman snorkeling off Maui, tearing away the victim's legs and one arm.

An angry posse goes after the killers

Public reaction to this series of attacks was in part predictable. Parents kept their children out of the water, the legislature debated "tiger shark eradication," and the tourist industry fretted. Advocates for a shark kill noted that Hawaii's last control program ended in 1976–enough time for a new generation of sharks to grow big enough to eat people. The state sent out a posse to dispatch any large sharks it could find in areas where the attacks had occurred.

But these are strange times, and the outcry on behalf of the sharks was at least as loud as the clamor against them. Some scientists argued that a control program would be futile. The rate of attack was determined not by how many sharks you took out of the ocean, they said, but by how many people you put into it. They also pointed out that while around eight million people a year use the beaches in Hawaii, the rate of attack remains minuscule: 2.4 per year. Better to spend the money for more lifeguards, they said, to reduce the annual toll of 30 or 40 deaths by drowning.

The public also took up the sharks' defense. "We think of them as family," said one protester. "They were there before us. That's their domain; it's their territory. Why pick on them?" Many native Hawaiians consider sharks sacred. Telephone threats caused one fisherman to give up the shark hunt. Under pressure, the state ultimately diverted much of its control money to research, conced-

The carcass of a scalloped hammerhead, stripped of its fins, drifts across the sandy bottom off Costa Rica.

Hung out to dry, shark fins line the rail on a Japanese ship. They are prized mainly in Asia for shark-fin soup.

ing that it didn't know how many sharks were out there, where they came from, how long they stayed around Hawaii or what made them attack.

Even Gruzinsky was ambivalent. When hunters dragged in a 14-foot shark that might well have been the one that attacked him, he said: "It was a sad thing to see, an animal like that dead, as big as it was . . . . There has to be some way we can both enjoy the ocean."

If what's happening in Hawaii is strange, it is also typical of the mixed feelings surfacing everywhere people live with sharks. Because of heavy fishing in the past two decades, there is widespread concern that shark populations have plummeted worldwide. People who used to sit on the beach and worry that there might be sharks out there now worry that there might *not* be. New and strange-sounding ideas aimed at saving sharks abound.

South Africa, for example, recently declared the great white shark a protected species and imposed a ban on fishing for the creatures and selling their jaws or other parts. In the coastal province of Natal, which has been thinning out its shark population for 40 years with a system of fishing nets off major swimming beaches, officials have announced that they will release the 10 to 20 percent of sharks that survive capture in the nets, including great whites.

These measures are doubly remarkable–in a country with a significant history of shark attacks on humans–because proponents readily admit that they have no solid evidence of a decline in actual numbers of great white sharks. The aim, according to Leonard Compagno, a shark biologist in Capetown, is to prevent local waters from turning into a shark "free-fire zone." He cites the case of a single fisherman off the Western Cape who took 18 large white sharks, extracted their jaws for sale on the American market at as much as $5,000 each and ditched the carcasses. Australia has also recently banned trade in great white parts and restricted fishing for several other shark species.

Uncle Sam now cares about sharks

In this country, federal officials have worked for three years on a long-delayed fisheries management plan for Atlantic and Gulf waters, with the formerly unthinkable goal of rebuilding the population of sharks. The plan comes from the National Marine Fisheries Service (NMFS, pronounced NYMPHS), which used to ignore sharks. It reduces the commercial haul of large coastal sharks by about 30 percent during the first two years. For recreational fishermen, it imposes a bag limit of four sharks per boat per trip. Among other restrictions, the management plan bans the notorious practice of stripping off the fins, which are the most valuable part of a shark, and then dumping the carcass back into the ocean.

How did such a fierce and unlikely creature become

Anglers proudly show off their trophies in the bad old days of "monster fishing." Nowadays fishermen are encouraged to throw sharks back after catching and measuring them. The object is to conserve, not waste.

the object of so much concern? In the aftermath of the sensational *Jaws* movies, shark populations came under ferocious attack. Recreational "monster fishing" flourished. Shark tournaments proliferated. The first prize was sometimes worth as much as $60,000, and extra prizes were awarded for the boats weighing in with the highest overall shark poundage.

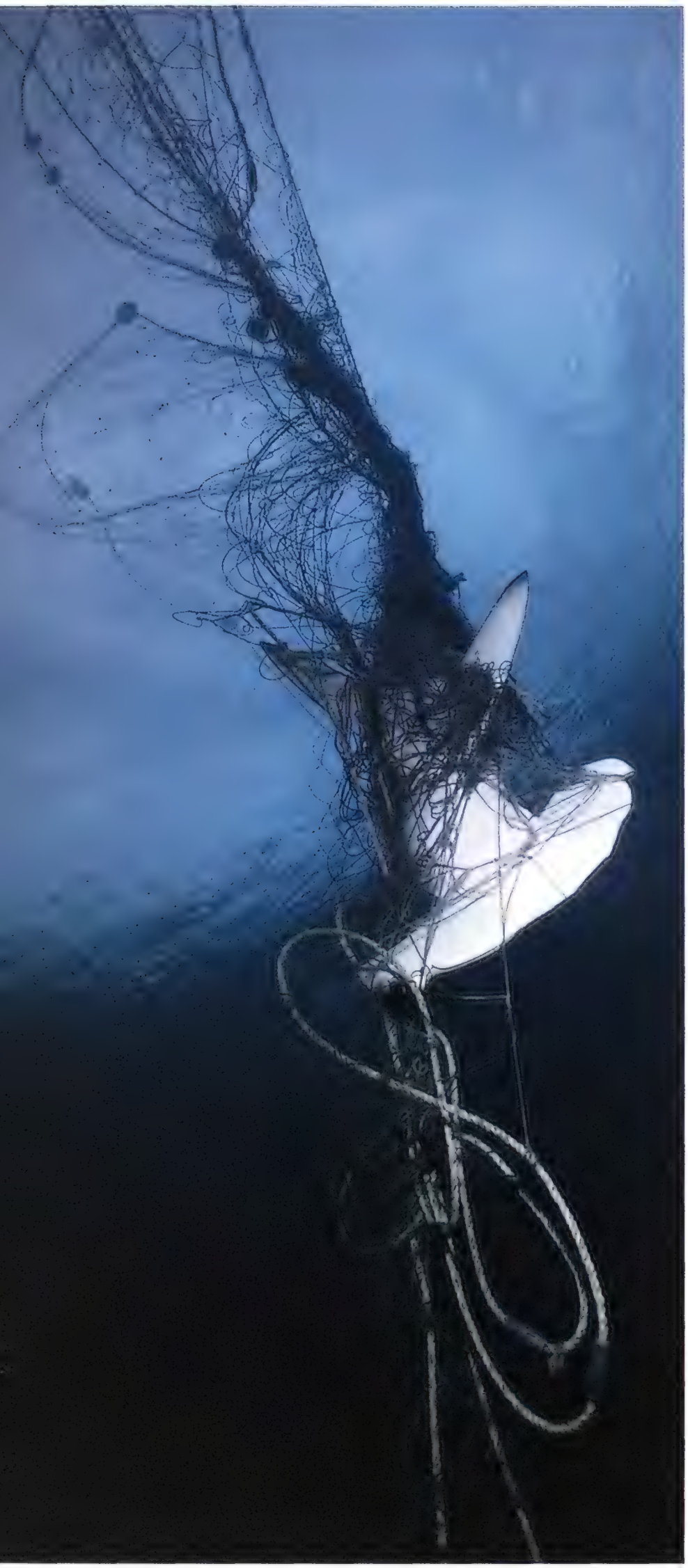
Commercial fishermen also began targeting sharks as tuna and swordfish stocks ran down. Shark meat had been the subject of much publicity after it was revealed that schools in Louisiana were feeding it to children in the 1970s. But through the magic of marketing, the meat suddenly became a hot item at restaurants.

At about the same time, liberalization in the People's Republic of China led to the end of longstanding strictures against the consumption of shark-fin soup. This, together with increasing wealth throughout the Pacific Rim, created a surge in demand–and price–for fins. That, in turn, drove shark fisheries around the world into a frenzy. Because shark meat remained relatively low-priced, fishermen often salvaged only the fins. Thus some people liken what has happened to the shark over the past six years to the slaughter of the buffalo in the 1870s. Fishermen dispute this analogy, but hardly anyone denies that sharks have gotten harder to find.

"In the early 1980s," a sport fisherman named Allen Ogle told me one night as we headed seaward off the west coast of Florida, "you usually had to have a fish in the 700-pound range to have a chance of winning a shark tournament." That number has dropped so quickly that in 1990 the top fish in one Florida tournament was a 92-pound nurse shark, a species sometimes derided as "overgrown catfish."

Out in 60 feet of water, Ogle baited up a couple of big, rusty hooks with a sawed-off hunk of tarpon the size of a Christmas roast. The boat was alone in the dark between untroubled sky and sea, with the faint amber glow of Sarasota down low in the east. Ogle drew out ten feet of line, picked up the leader and slung his generous offering over the gunwale, where it disappeared with a can-

The peripatetic Mr. Conniff has written recently about grizzly bears, orienteering and poetry contests. He tries to avoid sharks when swimming.



Hammerhead perished after getting entangled in a net. Most sharks must keep moving in order to respire.

nonball splash. "I'm targeting big ones with this," he said. "Eight feet and up."

Ogle got into tournament fishing in the early '80s. "There was a change in attitude after the first couple of years," he said. Almost all tournament fish wound up rotting in landfills or being towed back out to sink–a level of waste that made some participants uneasy and fearful for the future of their sport.

Odd as it may sound, tonight's event is thus a no-kill, catch-and-release shark tournament. Mote Marine Laboratory, a Sarasota institution specializing in shark research, sponsors it and boasts that "only the information is landed." Contestants are obliged to bring the shark to the side of the boat long enough to measure it and implant a research tag near the dorsal fin. For every foot of shark, they earn a ticket for the first-prize lottery. Then they set the shark free.

It is a noble idea whose time may already have passed. Ogle said he typically waits 30 hours to get a run now, where formerly an hour or two would have sufficed. At 3 in the morning, he hauled in the unmolested hunk of tarpon and headed home, having detected not the faintest *Dunt-dunt! Dunt-dunt!* tremor of a shark on the line.

The shark industry was outraged

Environmental groups, notably the Center for Marine Conservation in Washington, D.C., have pushed hardest for protecting sharks. The NMFS plan has also won endorsement from the Sportfishing Institute, the shark research community and coastal state governments. When a draft of the plan first appeared in 1989, the shark industry reacted with outrage, in part for reasons similar to those of other disputed fisheries. Although sharks migrate freely across international borders, the management plan can do nothing to limit the take by other countries, which is considerable. The Mexican shark industry, for example, is double the size of the American fishery and fourth-largest in the world. "All we're doing is penalizing Americans, and not doing anything to restrict the importation by other countries of shark fins, shark teeth and shark skins. To me, that's a travesty," says Sonya Girard, a Louisiana fin trader who is nonetheless savvy enough to have set up her own import operation in Latin America.

The fishermen are also angry because it was NMFS that got them into the shark business in the mid-'80s, with seminars and videotapes touting sharks as an "underutilized" resource. "They made it very easy for me to start this business," Girard recalls. "They gave us the names of Chinese people who dealt in fins; they gave us their fax numbers." Hence NMFS didn't have much credibility with fishermen when it turned around a few years later and told them that sharks weren't underutilized after all, but perilously overfished.

"They get their figures out of the sky," complains Chris Brannon, whose Alabama seafood company has acquired a reputation for taking more sharks faster than anybody else. NMFS originally based its proposed quotas on estimates that there were 814,500 large coastal sharks left on the Atlantic and Gulf shores in 1987, and 3,737,000 small coastal sharks in 1989. "How in the hell do they know all that?" Brannon asks. He argues that researchers have leaped too eagerly onto the save-the-shark bandwagon.

The current NMFS plan revises the original population estimates upward and doubles the fishing quota for big species, angering environmentalists. "I have a problem with the numbers because they run counter to all the assessments that have been done," says Sonja Fordham, a fisheries specialist at the Center for Marine Conservation. "I imagine it all comes down to politics."

The truth is, of course, that nobody knows how many sharks are out there. NMFS researchers arrive at their numbers by sampling an area or by examining catch records and extrapolating from these data with the help of mathematical models. Because almost everyone mistrusts such models, both sides wind up pitching "our" war stories against "theirs."

In 1989, for example, Grant Gilmore of the Harbor Branch Oceanographic Institution in Florida, videotaped sand tiger sharks at a wreck off the North Carolina coast. On his video, the massive blue shapes fill the screen, six to ten animals at a time. As the camera pans, the sharks appear everywhere, endlessly. But when Gilmore returned to the site in 1991 he found it empty. Local divers told him that a fleet of out-of-state commercial fishermen had taken everything.

Every shark researcher on the East Coast tells a similar story, and they all argue that even if their population numbers are merely estimates, it makes sense now to err on the side of caution. "If you waited till you had all the information you need, there might not be any sharks left," insists one NMFS administrator.

The image from Jaws *dies hard*

Except for one or two species, that basic information is woefully lacking. Researchers don't know for sure how fast different sharks grow, where they live, how often they reproduce or in what quantity–in short, all the data needed to figure out how to harvest a resource without destroying it. "People have this one image of the shark, the *Jaws* image," says Samuel H. Gruber (right), a longtime shark researcher and professor at the University of Miami. "But if you look at the 370 or so species of sharks, some are as different from one another as we are from rabbits." All sharks share such defining traits as straplike gills and a cartilaginous frame. But beyond that, says Gruber, there are sharks that are as flat as pancakes,

Researcher "Sonny" Gruber runs dye into one nostril of a tethered nurse shark to study how the creature smells.

Gruber, who has been working with lemon sharks for 30-plus years, injects a solution that helps combat shock.

Cookie-cutter shark, a close cousin of the dogfish, has a mouth specially equipped to bite plugs out of its prey.

Well-camouflaged angel shark waits for an unsuspecting fish or crustacean to pass within striking distance.

Diver hovers over a docile whale shark. Largest of the true fishes, this creature may grow to 60 feet or longer.

sharks that have beards and whiskers, sharks that glow in the dark. There are sharks that swim up to whales and bite plugs out of them. There are sharks that feed cooperatively, slapping mackerel or bluefish out of the water with their elongated tails. And there are sharks that patrol the bottom in solitude, using bioelectric sensors unequaled in the animal kingdom to detect the telltale gill movements of flatfish hidden under sand. Even as scientists discuss the possibility of extinction for some sharks, they are still discovering three to five previously unknown species each year. "In the study of sharks," says one researcher, "we are where people who study birds were in 1900."

One night, in a broad, mangrove-lined lagoon on the island of Bimini, 50 miles off Miami, I joined a group of volunteers who were wading waist-deep through a shark nursery. Big, pregnant lemon sharks had already come and gone in the shallow waters, each leaving a litter of fully formed young. Those offspring would stay there for the first year or two of their lives, preying on small fish and crustaceans around the roots of the mangroves, where bigger fish were less likely to prey on the young sharks themselves.

The volunteers were working for Gruber, who is called "Sonny" by some, "Doc" by others. A wiry, demanding figure at 55, Gruber was wearing a bush hat and a sleeveless khaki shirt. His manner was at once weary and relentlessly busy. He mixed laid-back "Ya, mon" island talk with abrasive commentary on the pettiest details of the operation, down to how thickly the lunch bread was

It is a "filter feeder" which, like some whales, subsists primarily (though not exclusively) on plankton and krill.

Port Jackson shark, named for an Australian inlet, is also known as a bullhead because of its massive cranium.

Basking shark, second-largest fish after the whale shark, takes in huge volumes of plankton with mouth agape.

being sliced and whether a visiting BBC television crew was taking sodas without paying for them (an inquiry proved them not guilty). His concern was understandable, since he pays for practically everything at the Bimini Biological Field Station out of his own pocket. The clock in the dining room was prominently labeled "For organizational reference only. We live as the shark," which seemed for Gruber to mean that constant movement is a biological requirement.

An associate of Gruber's named Charlie Manire had positioned long nets across the tidal flow, and it was the volunteers' job to lurch back and forth across the spongy bottom for a 12-hour stretch, seeing what the nets had caught. I watched one of them reach in to untangle the pale-bellied comma shape of a two-foot lemon shark. In front of us, a glittering, eight-inch-long fish rolled up to the surface with a red stump where the shark had chopped off its tail. The volunteer placed one hand firmly behind the shark's dorsal fin and guided it through the water back to a waiting boat. With its broad, rounded gray head, it looked like a pet nuclear submarine.

The idea was to catch, tag and measure every newborn lemon shark in that lagoon, over three nights, and then find out a year later how many of the creatures had survived under relatively natural circumstances. Preliminary results indicate that 80 percent might die before their first birthday.

Like most large sharks, lemons grow slowly, taking 12 to 15 years to reach maturity, at which time they may be eight feet in length and weigh 220 pounds. Like us,

A female lemon shark gives birth to live "pups" that have been nourished by a placenta for not quite a year.

they reproduce by copulation and internal fertilization, allowing the female to provide nourishment and protection for a relatively small number of embryos. By contrast, an individual cod or flounder can lay millions of eggs per year to be fertilized externally. The lemon shark needs a year to produce a single litter, then waits till the following year before she mates again. In lemon sharks, as in other species that nourish their fetuses with a placenta, the umbilical cord actually leaves a small scar–the fish equivalent of a belly button.

Do not leap to sentimentalize sharks, though. Consider, instead, the in utero world of the sand tiger. The first embryo breaks out of its elastic, egglike capsule when it is four inches long and swims around the uterus, ripping open other developing egg capsules to devour the embryos inside. According to Grant Gilmore, who first documented this phenomenon, the sand tiger has two uteruses, and the strongest offspring in each eats its way systematically through its siblings. At birth, the two survivors are 40 inches long and amply prepared for the rigors of the outside world.

For whatever reason, the reproductive strategy of sharks tends to produce relatively few adults. When humans use drift nets, fish finders, 600-hook longlines and other modern technologies to take out huge numbers of adults, sharks, unlike cod, lack the ability to replace themselves quickly. "Nobody can make a living killing sharks," says Gruber. "You can't make money with slow-growing pelagic fish that you hammer down so they don't have a breeding stock." He holds up his fingers like a closed flower and then bursts them apart. "*Poof!* It's finished. Fifty years to recover."

Like other children of the 1930s and '40s, Gruber remembers being force-fed cod-liver oil for vitamin A. The oil actually came from sharks. (Shark-liver oil, properly labeled, is still a major ingredient in a popular preparation for hemorrhoids.) In California, demand for vitamin A drove the price of soupfin shark livers from $11 a metric ton in 1938 to $1,653 just four years later. Synthetic vitamin A replaced shark-liver oil in 1950, but the West Coast population of soupfin sharks has yet to recover. The literature is full of similar cases. As a conservation-minded shark fisherman told me, "There's never been a shark fishery that hasn't crashed."

So why did NMFS promote a shark fishery on the East Coast? "Remember where we were," says Paul Leach, chairman of the task force that prepared the shark-management plan. In the early 1980s, NMFS was clamping down on the overfishing of king mackerel, snapper and grouper. But back then sharks appeared to be everywhere. Fishermen were not only catching them unintentionally on their longlines, but also finding that sharks were tearing into the tuna and swordfish they had hooked. "That's what was taking a good 40 percent of your catch," says Chris Brannon, the Alabama seafood entrepreneur. "NMFS's attitude was, Hell, catch 'em. Let's develop a fishery."

Targeting sharks also had an undeniable emotional appeal. According to the most reliable estimate, sharks attack 50 to 75 people a year worldwide, causing 5 to 10 deaths–an incidence rare enough that one researcher has a sign posted on his wall advising: "Avoid Shark Attacks–Get Hit by Lightning." But the ingrained human dread of sharks persists. Ernest Hemingway chronicled their voracity and took occasional potshots at them. J.L.B. Smith, one of the great marine scientists of this century, once wrote: "We must seek to evolve devices that will attract and ruthlessly destroy every shark that comes anywhere near."

"I didn't think the problem was real"

"I never believed what Smith proposed was possible," says Sonny Gruber. Then, just as he was beginning a study in the Florida Keys in 1986, people there began catching sharks for crab bait. The impact of overfishing in years past soon became apparent. "The first year we got about 150 sharks, the second year about 110 with the same effort, the third year 35 sharks, and in 1989 we got only 7 sharks, and then we realized the study was over. That's when I wrote my first shark-conservation paper. Before that, I didn't think the problem was real."

NMFS did not think the problem of a shark-population crash was real, either. It was public opinion, rather than research, that ultimately changed its mind. "It took finning," said one NMFS researcher, "before the public outcry and the emotional level reached the point that we decided the fishery was in peril." In one widely publicized case, two Florida fishermen were caught in 1988

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killing bottlenose dolphins and using the meat as a shark attractant. Federal agents prosecuted them for violating the Marine Mammal Protection Act. But the agents also noted that when the pair caught sharks, they sliced the fins off the living animals and left them to die, and that this was entirely legal. It was the first time most Americans had ever heard of a market for shark fins.

The shark industry is still trying to live down the bad reputation it got from the fin trade and from a handful of incidents in which sport fishermen actually caught sharks after they'd been finned. Live-finning, says Sonya Girard, the Louisiana fin trader, "was the emotional catalyst that started the management plan, but it just didn't happen. Sharks are awesome animals, and you don't just say, 'Scuse me, I wanna take your fins."

Girard explains that many sharks, such as hammerheads, arrive at the surface dead after having been immobilized on a longline hook. "Hammerhead meat is too mealy and too pink; consumers don't want it," she says. "If you don't have a market for it, what do you do with it?" It would be wasteful *not* to take the fins, she argues. Under the new management plan, American boats will still be allowed to land the fins, but they may constitute only 5 percent of the dressed catch, thereby making finning economically impractical.

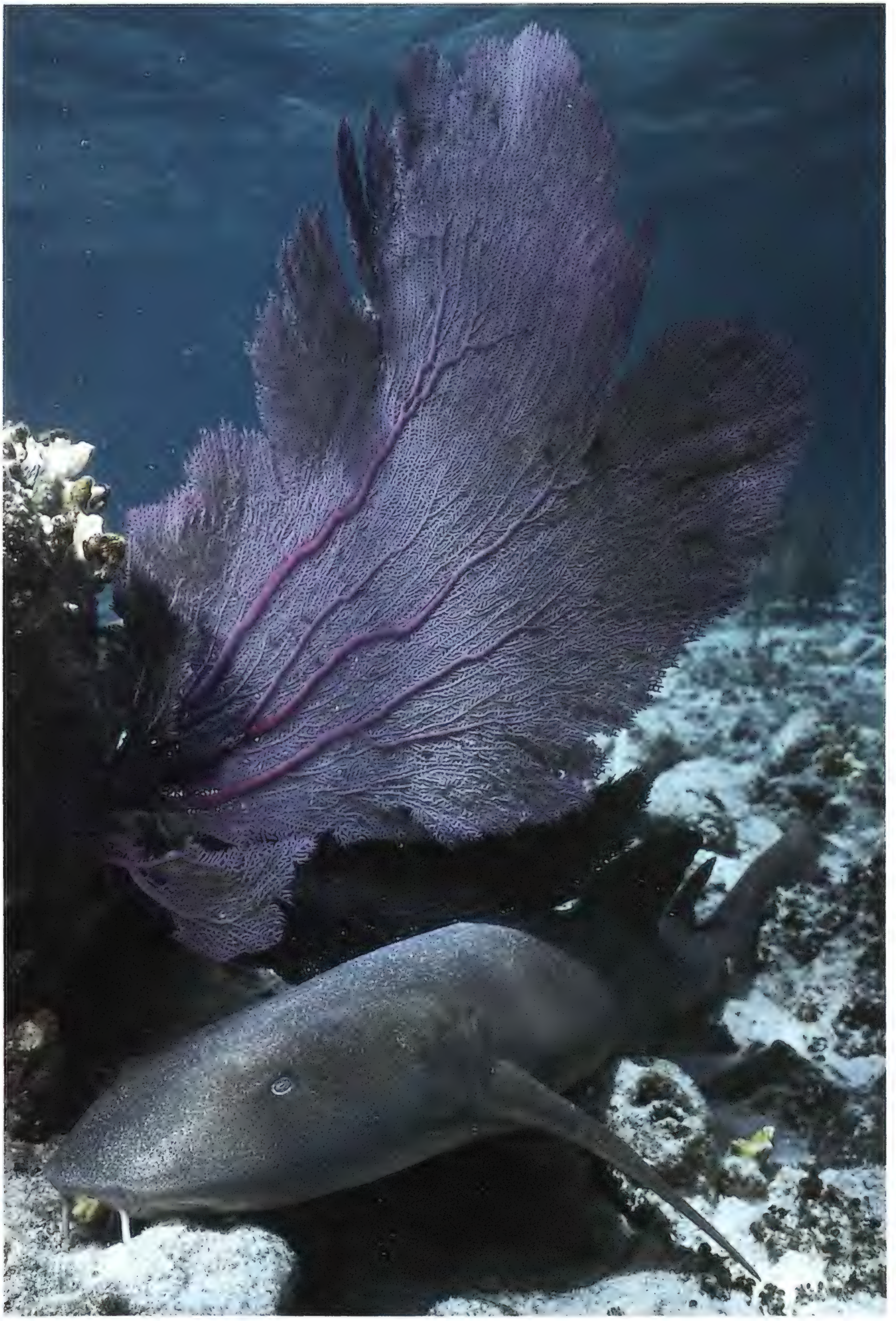
But no one has yet developed hooks or nets that discriminate against hammerheads and other undesirable "bycatch." Too many sharks will thus continue to be caught by boats that don't want them or aren't equipped to deal with them. NMFS estimates that even as recently as 1988, American fishermen were discarding 90 percent of the sharks they caught. Other nations are probably no better. An Australian researcher recently reported that Japanese longline vessels targeting bluefin tuna off the Tasmanian coast alone inadvertently catch 43,500 blue sharks a year. Sharks have also died in huge numbers as a bycatch of high-seas drift netting. A multinational team of observers on Japanese squid boats recorded that drift nets took 58,100 blue sharks in a single six-month period in 1989.

Among the many things nobody knows about sharks, one of the most disturbing is what an ocean without them would be like. Some prey, such as the stingrays favored by hammerheads, would probably boom. "God almighty, there are stingrays!" Allen Ogle complained to me. "We had 16 different swimmers hospitalized for stingrays off one beach early this summer in Sarasota. When you think about that," he added with the earnestness of the convert, "it's easy to see that the shark can be our friend, too." In Australia, ecologists speculate that the rise in the shark fishery may have led to the collapse of the spiny lobster industry in some areas. With the sharks gone, a variety of small octopuses apparently flourished and preyed on the lobsters.

Sharks may also influence other species in more subtle ways. Like wolves, they tend to weed out weak or injured animals, leaving the quick and the strong to reproduce. At French Frigate Shoals in northwestern Hawaii, for example, marauding tiger sharks pick off dozens of fledgling albatrosses landing on the water after their first flight. One researcher theorizes that such attacks tend to eliminate animals that are not as intelligent or as agile as the survivors. The cruel logic of predation is that it improves the prey.

Not long ago I went out shark tagging in the Florida Keys with Bill Botten, a genial, balding retiree who wore tortoiseshell eyeglasses and a "shark sushi" T-shirt depicting humans wrapped in seaweed. Poling his skiff across the flats, Botten scanned the shallow water and said, "There's one cutting across that little mangrove island there." It was a young lemon shark. I cast once, twice. The second time I pulled the bait past the shark, it sprang. I reeled it in; the dorsal fin coming toward me across the water was ominous even at that scale. It occurred to me then that the nice thing about sharks–in a decidedly abstract, third-person sort of way–is that they improve *our* species too. They keep us literally on our toes, looking around us for shadows in the surf. They serve as toothy reminders that in the natural scheme of things we were not put here to rule unquestioned. In movies, literature, the paintings of Winslow Homer and John Singleton Copley–and at least until now, in real life–sharks have always served as a small check on our overweening pride. Botten planted a tag behind the shark's dorsal fin, and I lowered it into the water again. It lay in my hands for a moment, then surged free, back to the dwindling safety of its natural world.

Lurking under a sea fan, a nurse shark embodies the menace and beauty that make all sharks so fascinating.



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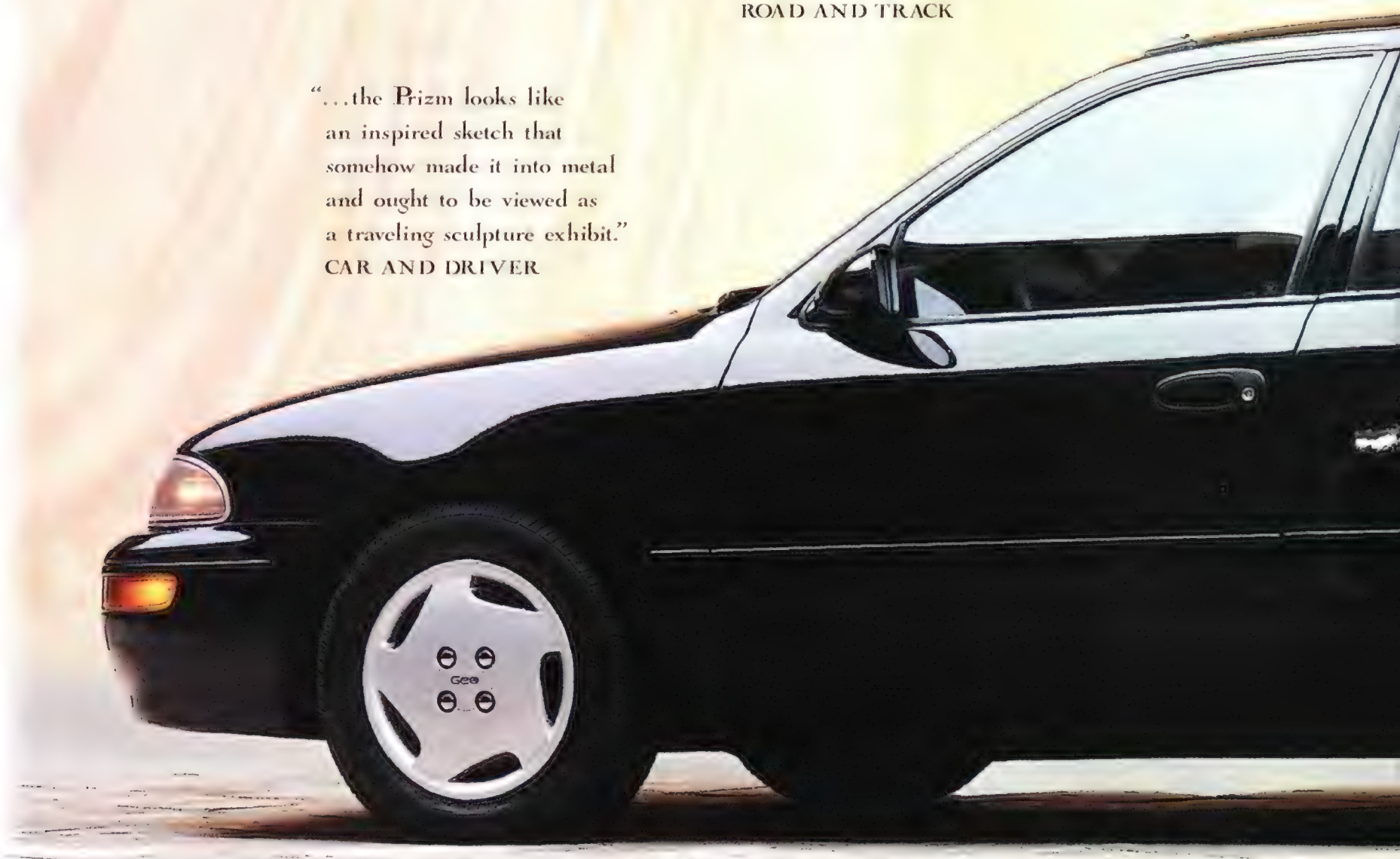

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By Tom Alexander

The anvil chorus is ringing loud and clear again

When the author set about learning to make a few items for his mountain home, he found the ancient craft is being revived as an art form

Demonstrating decorative filing techniques, Penland teacher Rick Smith commands students' rapt attention.

The three-quarter-inch-diameter, six-inch-long steel bar emerges from the forge glowing a deep, translucent yellow, like butterscotch candy. With the swift, lunging movements of the martial artist he is, Phill Baldwin wire-brushes it clean, lays the endmost two inches over the edge of the anvil, drops the brush, grabs his hammer. *Thunk! Thunk!* Whamming down from ear height, the four-and-a-half-pound hammer mashes the metal out like clay under a sculptor's thumb; scales of iron oxide darken on its surface and flake away into the blue-gray litter on the earthen floor.

Here at the Penland School of Crafts in North Carolina's Blue Ridge Mountains, Phill is a visitor-teacher in a two-week course in blacksmithing attended by a half-dozen students, including me. It's my first day and my first exposure to smithery. Phill, whose shop is near Snohomish, Washington, is internationally known as a custom knife maker. Lean and animated, with the smith's callused hands and corded forearms, he also possesses the fine-arts major's articulate intellect. He's from the same mold as a great many young artists now transmuting the ancient and functional craft of forging iron into a powerful, new fine art.

Art, at this moment, is the farthest thing from my mind. I fancy myself a fairly handy fellow; I have done considerable woodworking and some metal machining, and have hewed and notched the oaken walls, joists and rafters for a log house in the Smoky Mountains. Requiring hinges and latches for the windows, doors and cabinets–not to mention lamps, pothooks and pokers to complete the project–I have elected to run over to Penland to learn to hammer them out. A two-week course in toolmaking is the only blacksmithing course available that suits my schedule, but I reason that if I can learn to forge tools, then hinges and latches should be a snap.

In his own smithy, Tom Alexander forge-welds a door hinge. He made most of the tools on the wall at left.

At Penland I am joining a considerable community trying to resuscitate an ancient tradition. In past eras, the talents of blacksmiths virtually defined their civilizations. Smiths dined at the tables of kings with poets and priests, and were the father-artisans who made all the other artisans' tools, not to mention the hoes and hinges, bits and buckles, traces and tires, nails and knives, lamps and latches, gates and grilles and, of course, arms and armor without which no society could call itself civilized.

From Colonial times until well into this century, every American town and village had its general-purpose blacksmith who made and fitted the horseshoes and built and repaired the wagons, buggies, farm implements, firearms, and household utensils and hardware. The peculiar conditions on this continent–small communities isolated from centers of commerce and one another–demanded smiths who could turn their hands to any article involving iron or steel.

But by the early 20th century, hand-forged hardware was finding it tough to compete in price with mass-pro-

Phill Baldwin at his anvil; wavy pattern of Damascus sword blade (detail, above) is the result of combining two different steels.

duced items delivered by improved transportation networks; motorcars and tractors were replacing horses on streets and farms; ornamental forged ironwork, inherently expensive, was falling victim to Depression economics and new tastes that spurned ornamentation in favor of industrial spareness. As the forge fires died, skills and knowledge that had taken thousands of years for mankind to perfect, and a third of a lifetime for a man to learn, died with them. By the 1960s, about the only surviving American smiths were to be found in museum-villages or some poor agricultural regions of the South and West, or catering to a few wealthy residential areas with a yen for wrought iron.

Then, more or less spontaneously, the blacksmithing renaissance got under way, when lots of bright, disaffected young people began seeking authenticity through anachronistic rural pursuits, folkish handicrafts and art. Blacksmithing fit the bill quite perfectly. The trouble, as they quickly discovered, was that apprenticeships and courses had vanished. And so most of these early romantics had to accumulate knowledge and skill in trial-and-error, catch-as-catch-can fashion.

At Fortune, *the author's beat included high-energy physics and computer theory. Nowadays smithing, and restoring and running steam engines enthrall him.*

An early participant in the renaissance, Phill is showing our class how to turn out a pair of blacksmith's tongs. Forming the complex jaw shapes between hammer and anvil, and drawing out long handles with a compressed-air power hammer, he creates two identical tong halves. Finally, with the insertion of a hot homemade rivet through the halves, the tool is ready for use—in about 20 minutes.

It looks as easy as molding clay, a good first-time project. We students go to our forges and start fires with balls of paper and pellets of coal, helped from beneath by air from a blower. In a few minutes, the richly smoking coal purifies into a bed of glowing coke, the blacksmith's fire. I thrust in my bar of steel, and lay my own hammer and tongs at the ready.

A devotee of instant gratification, I am captivated by the rapidity with which Phill Baldwin makes his tongs. "As a youngster," he says, "I saw a blacksmithing demonstration at Old Sturbridge Village and it looked like a lot of fun. In 1966, when I was about 13, I found an old forge at my junior high school and bugged my shop teacher until he let me fire it up. He left me alone. I made a very horrible fireplace poker, and then I couldn't stop. I put together a forge and bought an old anvil in a junk shop on Canal Street in Manhattan and went to work. No teachers existed that I knew of, so I had

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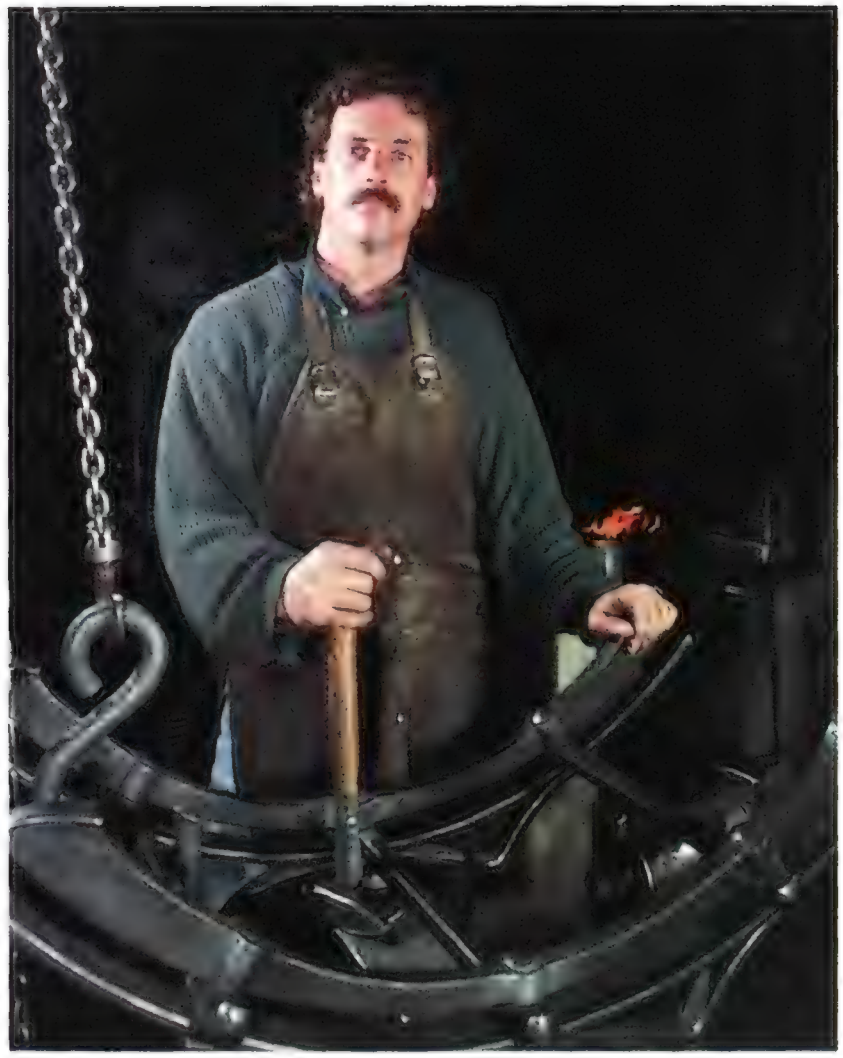

Tom Joyce pauses beside an elegant cradle for holding firewood, which he has just fashioned from mild steel.

to figure everything out by myself. I spent ten years making mistakes, believing myself all alone."

I take up my tongs, poke around in the coals and bring forth the glowing bar. Moving fast and clumsily, I lay one end of the rapidly cooling bar across a sharp edge of the anvil and smack it. It jumps loose and lies smoking and blazing on the dirt floor until I can fumble it up again. By that time it's pretty cool, so I stick it back into the fire, turn up the air blast and wander off to find a set of tongs better suited to holding round iron bars. When I fish out my steel, it is white-hot and hissing, spraying sparks like a Fourth of July pyrotechnic. I dunk it into my tub of water, where it glows, bubbles and rumbles like doom, cooling to a black, crumbly spindle as useless as charred rope. I fetch another bar.

Properly heated and properly held, this one gets to the anvil OK, and I flail away. I begin to comprehend that the jaw I'm creating is subtly but irretrievably incorrect, like a left foot on a right leg. I make the same mistake with another bar. Phill comes by and observes my difficulty. He heats a bar and, in a few blows, roughs out the proper shape. I get a bar, forge it wrong once again, and add it to my mounting pile of scrap iron and frustration.

Most of my fellow students seem about finished with their tongs; three forges down, a slight young woman named Susan appears to be starting her third pair. The day is hot, the forges blazing, the coal smoke sulfurous and oily, the earthen-floored forge room dark, noisy and medieval. I feel sweaty, dirty, discouraged and dumb. We break for lunch.

During my time at Penland–and subsequent explorations that I made into the world of the forge and anvil–I came to realize that I had the opportunity to learn firsthand about blacksmithing, in this last decade of the 20th century, only because of a handful of people who had kept the craft alive during what might be called its Dark Ages. One of these is Frank Turley, who in 1959 turned his back on his new degree in anthropology to pursue the trade of a farrier, or horseshoer, in Oregon. He moved to Santa Fe to work under Victor Vera, who in his native Mexico had been captured by Pancho Villa and served as the revolutionary's horseshoer, gunsmith and safecracker. Ultimately Turley himself began teaching. When he advertised in the first *Whole Earth Catalog*, the bible of the era's back-to-basics movement, he soon had a yearlong backlog of applicants. At 57, pony-tailed and with large, powerful hands and graceful movements from years of practicing T'ai Chi, Turley has taught hundreds of aspiring smiths.

Another keeper of the flame was not a professional blacksmith at all but an Atlanta advertising man named Alex Bealer. Bealer had pursued forging as a hobby for many years, soaking up lore from various old smiths still to be found in the rural South. In 1969 he published *The Art of Blacksmithing*, a book that became perhaps the most influential catalyst of the smithing renaissance. In 1973 he assembled a bunch of young enthusiasts, many of them art students, at a smithy in Lumpkin, Georgia, to meet some of his venerable blacksmith friends. The old men proudly demonstrated their methods for several days, and toward the end of the session they and the young amateurs cemented their relationship by forming

Spanish Colonial farm tools as well as architectural elements inspire Joyce. Clockwise from left: detail of a railing finial, a fruit bowl with overlaid steel bars, a sconce, a door hinge based on staghorn design.

the Artist-Blacksmiths' Association of North America (ABANA). From the initial 27, membership has grown to nearly 3,500.

But the grand old man of the revival is 86-year-old Francis Whitaker. In 1922, at the age of 15, he had gone to work as a blacksmith's helper in the studio of Samuel Yellin (SMITHSONIAN, March 1982). A Pole who had learned his blacksmithing all over Europe, Yellin became legendary as a master of architectural ironwork. Says Whitaker, "The first time I took a piece of iron from the fire and started to beat on it, I knew that was what I wanted to do with my life." Later, after working under Julius Schramm, one of the top smiths in Germany, he set up an ornamental iron shop in Carmel, California, and then—since he was an ardent skier—in Aspen, Colorado. He had a hip replacement a few years ago but was back at work in two weeks and back on the slopes in two months. Quick around the anvil, deft and sure with the hammer, he reveals his 86 years mainly by a slight stoop.

At the 1976 ABANA conference, still cherished as American blacksmithing's Woodstock, Whitaker was the star of the show. "By the end of the conference," he says, "I knew I had a mission. I had never seen so many people so hungry for knowledge. They would follow me into the bathroom asking questions." Since then he has led nearly 200 workshops and published a book, *The Blacksmith's Cookbook: Recipes in Iron*. Before Whitaker contributed his European-based knowledge and standards of workmanship, it's fair to say that American ironwork was pretty raw. These days, however, the best American work can hold its own with the best from anywhere.

At Penland, back from lunch and calmer, I rekindle my fire, heat another bar and get the business ends of both tong halves shaped more or less correctly. But in drawing out the rein, or handle, end of one, I overheat the thinning section and burn it off. At Phill's suggestion, I try forge-welding on a replacement rod by shaping and heating the ends to white heat and hammering them together. They fall apart. In drawing out the rein of yet another tong half, I lose control of the air hammer, which pounds the steel into an absurd, lumpy strand.

By late that evening, my pair of tongs finally exists, as malformed as something found on a nursery school table after the Play-Doh session. What mainly betrays it as a product of the mind and hand of man rather than an act of nature is the pivot in the middle. Phill walks past and gives it a glance. "A pretty good first pair of tongs," he says. Privately, I conclude that getting to the hinge- and latch-making stage is going to take awhile.

Traditionally, it took three to seven years of schooling

Francis Whitaker (below) treasures this iron ashtray, a memento from his teenage apprenticeship in Berlin.

Garden gate reflects a variety of age-old techniques, many of which Whitaker shows at smithery conferences.

or apprenticeship and eight to ten years of journeyman practice to attain master blacksmith status. At age 39, with a quarter-century of practice behind him, Phill Baldwin says, "Blacksmiths don't really get cracking until age 40. I can hardly wait."

Conceptually, forging metal is fairly simple: you can bend a hot bar; you can draw it out to make it thinner; you can to some extent "upset" it–or make it thicker–by hammering on one end. With various tools, you can also cut, split, punch, twist and otherwise deform it into shapes of arbitrary complexity. And you can also join pieces together by forge-welding.

Physically, though, molding hot iron between hammer and anvil involves a complex of manual skills, intuitions about how the material moves when hit, familiarity with the shaping surfaces available on the common anvil, as well as innumerable other manipulative tools and tricks handed down over centuries. It also requires careful planning of the sequence of operations to avoid forging oneself into a blind alley. One spends a lot of time developing speed and precision: the dance around the anvil is an athletic enterprise, pitting cool brain, heavy hammer and brute strength against hot, reluctant material. One misdirected blow often spoils the piece, and even masters acknowledge that luck plays some part.

Traditional blacksmiths mostly worked in wrought iron, a relatively soft, tolerant material, which is no longer produced. Nowadays, smiths mostly forge "mild steel," an inexpensive alloy of iron with about 0.3 percent carbon. Phill's toolmaking course focuses on the properties of various modern "tool steel" alloys with somewhat larger amounts of carbon and other ingredients that make them far more versatile than mild steel. We learn about the critical heat treatments needed to evoke their various merits. In general, these involve heating forged items to a glowing red and then chilling them in water, oil or air, depending upon the alloy involved. That leaves the steel in a state of ultimate hardness but so brittle it is useless for most applications. So it must then be tempered: hardness selectively reduced and toughness increased to answer particular demands.

Watching a parade of rainbow bands

Tempering involves carefully reheating steel to a temperature well below the glowing state. The lower this heat, the harder remains the steel. Among the magical fortuities discovered by the ancients is the ease with which one can gauge the various tempering temperatures with the unaided eye: when a polished steel surface is heated in the presence of air, colored bands of oxide film appear, changing colors as the temperature rises. The bladesmith heats the back edge of a hardened knife blade, watching the rainbow bands parade across the blade until the proper brownish-yellow reaches the

TOM SEAVER

Gardener, Baseball Hall-of-Famer

Gardening is an important part of my life. I'm often out in my garden by seven.

I love the smell in the air, the early morning light.

My wife Nancy gave me a bronze plaque.

It says "He who plants a garden plants happiness." That's the way I feel.

I use Miracle-Gro to make everything in my garden look its best.

I learned that secret back when I was a rookie gardener.

Tom Seaver

Frank Turley's artistry includes, from left, sleek smith's tongs, a pipe tomahawk and the spiked head of another, a rose and a variety of farrier's tools.

edge. Then he quenches the implement in oil or water, leaving a tough and resilient bulk to support the hard and brittle edge. Versed as the ancient smith was in the vital arcana of creating and tempering high-carbon steel, it's little wonder he was secretive–and worshiped.

During my two weeks at Penland we go on to make hammers, punches, chisels–all the essential hand tools for an elementary smithy, in fact–and we also hammer out some knives and other items.

The class laggard in forging aptitude, I have a moment of glory, of sorts, when we get to making hammers. Owing to the sheer bulk of the steel involved, punching "eyes," or handle holes, in hammers and sledges ranging in weight from two to eight pounds becomes a collective class enterprise. Phill issues four of us hefty sledgehammers and positions us around an anvil as "strikers." Each student in turn brings his or her brightly glowing bar–an embryonic hammer–to the anvil and holds a large oval punch over a marked location on the bar. At the holder's nervous nod, the circle of strikers begins swinging like a circus tent-peg crew. As we pick up rhythm and confidence, the anvil chorus swells to a heady and, with all that massive steel flying around, scary beat, one sledge barely leaving the punch before the next descends, the punch holder striving shakily to keep it positioned and vertical under the powerful impacts, periodically calling a halt to cool the punch in water. Despite some glancing blows and colliding hammers, no one actually gets hurt, and slowly, inexorably, amid clangor and tension, the punch descends through the reluctant steel.

On the trail of masters of smithery

I have found my niche. Hewing logs and splitting firewood, it appears, are fine preparation for a career as a striker, and I'm the star of the class–I can wield a bigger sledge and hit harder and, for the most part, more accurately than anybody else. In subsequent critical forging demonstrations requiring a striker's assistance, Phill designates me alone for the job.

Despite my general ineptitude, by the time I finished my course at Penland I had learned some rudiments of smithing. I had learned also that there were people out there who had achieved such mastery over steel that they had moved beyond craft to the realm of art, and I wanted to meet some of them.

I found Tom Joyce on a piñon-covered hilltop overlooking Santa Fe, in a spacious shop resounding with blues and classical music and the working clangor he and his four assistants produce. Joyce, 36, is among the more gifted of the new crop of smiths, and Francis Whitaker calls him simply the best blacksmith in America: "I'm jealous; he's so young and yet so good." Lean, articulate and gracious, like so many of these artists in iron, Joyce projects a passion for quality: original design executed in the best standards of Old World craftsmanship.

The son of an archaeologist father and quilter mother, Joyce was brought up in the New Mexican town of El Rito, where a local printer who had a small blacksmith shop taught him some of the basics. When Joyce was 16 the printer moved away, renting his shop to the boy, who never returned to school but instead repaired items for local farmers while learning to copy antique ironwork. In a few years he was making objects that could easily be mistaken for the best from the Yellin Studios.

In 1978 Joyce moved to Santa Fe and set up an architectural ironwork shop, where he produces exclusive

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custom designs–gates, room dividers, lamps, furniture and so forth. He generally has more than a year's backlog of orders but says employing more assistants would mean too much time spent supervising and too little at the forge, "where the fun is."

Joyce employs all manner of modern metalworking devices and new transparent finishes that reveal glimmers of native steel in the hand-forged surfaces.

Some enthusiasts contend that various innovations, including materials and tools, together with the adventurism characteristic of contemporary artists, have brought blacksmithing to the brink of a new golden age, on a par with the pinnacles attained in medieval and Renaissance times. Steel's strength, plasticity and relative cheapness make it an almost ideal sculptural medium, capable in principle of being shaped into any conceivable form.

Author's handiwork includes fireplace and table as well as output of his forge. Household objects–snake trivet, knife blade, cabinet hinge, and pot rack with its eight hooks–accompany three of his smith's tools.

The ready availability of large power hammers and arc welders that can forge or fabricate massive sections frees the modern smith from the characteristic spindliness that limited the work of the traditional smiths. Says Joyce: "We've served our apprenticeships and now it's time to make something happen."

Another important force behind the transformation of this utilitarian craft into a dynamic art form has been an influx of people who have academic credentials in art and jewelry making. Often cited as the most influential is Albert Paley, whom I met in his cavernous studios in Rochester, New York. Wearing a long, reddish-blond mustache and a ponytail, Paley clearly views himself more artist than blacksmith (p. 59).

He studied art and sculpture in the mid-'60s at the Tyler School of Art, part of Philadelphia's Temple University. Another rebel against that era's spare, industrial esthetics, he took up goldsmithing and turned the jewelry world on its ear with his "body sculptures"–monumental brooches and pendants, some as big as pie plates, multifarious in their materials, exquisite in complexity and detailing, and sensuous, even erotic, in design.

While not all that many women dared wear these creations, Paley says what really discouraged him was that the art world doesn't take jewelry seriously. "So, I got involved with iron. I set up a forge in a two-car garage, checked out library books on blacksmithing that had last been checked out half a century before and did my own apprenticeship."

Nontraditional materials, flashy paints

His first important commission, completed in 1974, was a majestic pair of gates for the Smithsonian's Renwick Gallery. For many emergent blacksmiths, these gates opened upon a new world; their sinuously curving bars, use of the contrasting materials iron and brass, and elegant finish clearly reflected both the early 20th century's Art Nouveau style and Paley's experiments in jewelry.

The Renwick gates' construction lies well within the blacksmithing tradition–rectangular bars forged, collared, riveted and tenoned in the approved manner. Over the years, however, Paley has increasingly diverged from those conventions. His newer works conjoin such nontraditional materials as aluminum, glass, stone and wood, sometimes sprayed with flashy, multihued automobile paints.

Enormously prolific, he and six or seven assistants have turned out dozens of major commissions–sculptures, gateways, railings, fountains–for public institutions and corporations, as well as household articles ranging from tables to room dividers. The dominant themes remain abstract, organic and dynamic.

"To my mind, he's an artist of the stature of Picasso because he's changing the way we see this material," says

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A condominium-office complex in Philadelphia has ceremonial arch by Albert Paley (opposite), who bevels edge of plant stand with an air-powered grinder. Curlicue form is one of his favorites.

Daniel Miller, another artist-turned-blacksmith, who works in North Carolina. "He's the explorer in a new territory that others have since come to occupy."

Back home, full of enthusiasm after meeting with Joyce, Paley and others, I construct a little shop in the form of an open shed behind my barn. I find odds and ends in a junkyard, including a metal base from some sort of scrapped machine and an electric blower from another, and with considerable adaptation convert them into a forge. I already had an ancient and battered 150-pound anvil that years before had turned up, beautifully wrapped, under the Christmas tree, thanks to the prescience of my wife. I acquire some stoker coal from a coal yard and some mild steel from the local welding shop and try my rudimentary forging skills in hammering out some cabinet hinges. After spending a day or two roughing out half a dozen rude versions of the hinge half that fastens to the door, I realize I haven't thought through what the other half is to look like—or even how the hinges are to work. Obviously a pivot pin will be needed to join the two halves, but after many scrapped attempts I find I don't know how to make the "barrels," the cylindrical eyes into which the pins will fit.

By chance, I have made the acquaintance of a nearby smith, Steve Kayne, who reproduces Colonial hardware for a living. Steve invites me over to his shop for an evening, and I get my first lesson in hinge making. He shows me how to forge the barrels by curving the metal over the anvil's edge and continuing to roll it up neatly with hammer blows.

To fasten my hinges to cabinets, I need handwrought nails; to make the nails I need a nailheading tool. But to make the nailheader, I need a specially shaped punch. In my several attempts to forge that punch from junked pieces of high-carbon truck spring, the pieces crumble to bits under the hammer. An appeal to Steve Kayne reveals that I must be overheating this tricky steel.

I should have suspected this from my lessons at Penland, of course, but the sunlight streaming into my open shed makes glowing steel look much less bright than it looks in Penland's dark smithy. I enclose my shop with plywood walls, only to find that my forge now not only smokes me out but presents an obvious fire threat to the new walls. I install a hood to pipe smoke through the roof and sheathe portions of the walls in sheet metal. Finally back to making nails, even that isn't simple: none of my crude nails bears much resemblance to the others, and each seems to take around five minutes to make.

And yet, pounding away in the little shop behind my barn, I find that I'm getting steadily better. By now I can reliably turn out hinges that hinge and latches that latch, and once in a while I design and craft an item that I judge to be not half bad, like the trivet in the shape of a coiled snake I recently made for my wife. Obviously it's partly a matter of developing motor skills and confidence, and internalizing the ways of hot iron and the uses of the angles of the anvil.

But it also has to do with sharpening the eye. Before trying my hand, I was largely blind to ironwork, even to the astonishing railings, gates and armor of the finest European masters. Nowadays every item I forge, every mistake, every reject, primes my attention to how it really should be done, deepens my amazement at how well it has been done, and opens my eyes to esthetic realms I never saw before.

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By Geoffrey C. Ward

Like his music, the Duke was beyond category

The great composer and bandleader Edward Kennedy Ellington loved us all madly but he was a loner who kept others at arm's length

For many of us old enough and lucky enough to have heard the Duke Ellington orchestra in person, it is the man who led it, not the great music he wrote or the equally great musicians who played in it, that remains most vivid in our memories. I first saw him in Chicago in 1952. The cast of characters changed over the years, but the prelude to each Ellington performance was pretty much the same. First, the members of the band ambled onto the bandstand. They usually looked less than enthusiastic about performing–not surprisingly, since they often had to do so more than 350 days a year and sometimes three times a day. Heavy-lidded Johnny Hodges, celebrated for the warm, opulent sound of his alto saxophone, seemed barely awake. Clark Terry sat with his trumpet on his knee, staring out over the heads of the audience. Big, broad-shouldered Harry Carney, checking the reed in his baritone saxophone, was all business as befitted the man whose resolute, tumbling sound anchored the band for almost three decades. Only the youthful drummer, Louie Bellson, seemed eager to start, grinning to himself as he made last-minute adjustments to his cymbals and beat out a tattoo on the twin bass drums that were his trademark.

Each of these artists was a star in his own right, but each was also made to sit behind a music stand on which was emblazoned the oversize, supremely confident signature of their leader. They were Duke Ellington's men. He was never theirs.

There was a pause.

And then, as Harry Carney stamped his foot and the first notes of the familiar Ellington theme, "Take the 'A' Train," surged through the auditorium, on he strode, handsome, smiling, every hair in place, his ruffled shirt, broad cuffs, even his shoes, perfectly matched to the occasion. One woman who first saw him perform when she was just a little girl remembers only that footwear: "He was wearing velvet slippers!" she recalls. "No man I knew would have dared wear velvet slippers. I never took my eyes off them."

People rarely took their eyes off Duke Ellington. He dazzled.

So did Liberace, of course, and if that had been all there was to Ellington he would quickly have been forgotten. An exhibition that opened last month at the Smithsonian's National Museum of American History, "Beyond Category: The Musical Genius of Duke Ellington," makes it unmistakably clear that he may well have been the country's greatest composer, and the critical reputation of his music has only grown since his death 19 years ago. The essayist Albert Murray may have put the case for Ellington best: "Those who regard Ellington as the most representative American composer have good reason. Not unlike Emerson, Melville, Whitman, Twain, Hemingway, and Faulkner in literature, he quite obviously has converted more of the actual texture and vitality of American life into first-rate universally appealing music than anybody else."

You name it, the Duke did it

Duke Ellington was responsible for so many pieces of music that scholars haven't yet agreed on a final tally. But John Edward Hasse, the Smithsonian's curator of American music and author of an Ellington biography to be published this fall by Simon & Schuster, believes it may near 2,000. Ellington is still best known for the pop tunes that made him famous–"Sophisticated Lady," "Mood Indigo," "In a Sentimental Mood," "I Got It Bad (and That Ain't Good)," "Don't Get Around Much Anymore," "Do Nothing Till You Hear From Me"–but he also wrote ballet and film scores, tone poems, orchestral suites, musicals and choral works.

He was a major figure for more than half a century, yet almost no one claims to have known him well. His younger sister, Ruth Ellington Boatwright, who lives in New York City, remembers that "there was just veil after veil after veil." He is largely missing from his own autobiography, *Music is My Mistress*, a compilation of benign jottings about people he'd known, places he'd been. Reading it, one would think he never made an enemy or

Tophatted in 1930s publicity pose, youthful Ellington exudes the cool air that earned him his regal nickname.

While traveling with Duke's band in summer of 1932, his mother (left), dad and sister enjoy a stop in Cincinnati.

suffered a slight. The Ellington papers deposited at the Smithsonian document his methods of composition but offer precious few clues to his personality. Offstage as well as on, he seems almost always to have been "the Duke," glittering but opaque, his languid, courtly manner part put-on and part put-off, designed both to delight the public he professed to love madly–and to keep it at a distance.

Edward Kennedy Ellington was born in a middle-class section of Northwest Washington, D.C. on April 29, 1899. His deeply religious mother, Daisy Ellington, had only recently lost her firstborn child in infancy, and the new baby evidently represented for her the second chance for which she had prayed. She made it her life's work to ensure that no harm came to him. Few children have been more warmly cared for, more closely watched over. His mother hovered at his bedside through every childhood illness, nagged him about practicing the scales (he once had a piano teacher with the euphonious name of Marietta Clinkscales), made sure he attended church services twice each Sunday, encouraged him to become an artist. She taught him that nothing was beyond his reach.

"As though I were some very, very special child," he remembered, "my mother would say, 'Edward, you are blessed. You don't have anything to worry about. Edward, you are blessed!'" And because she was convinced he was a very, very special child, and blessed, Ellington came to be convinced of it, too. "Nothing was impossible" to him, his sister recalls Ellington saying, as long as he "believed in God."

His mother would remain the most important figure in his life; hers was always the approval he sought most eagerly. But he was in some ways more like his father. J. E. Ellington "lived like a man who had money," his son remembered, "and he raised his family as though he were a millionaire." He was a butler, a chauffeur and a caterer during Ellington's boyhood years, and he passed on intact to his son his courtly manner, teasing wit and fondness for fine things and elegant clothes. J. E.'s son was so gallant and so dapper that the other boys in his neighborhood nicknamed him "Duke" before he entered high school.

Determined to be his own man

Ellington's reticence about his private life started early. He remained close to his mother but was determined also to be his own man, which meant keeping some things from her. Soon, he was slipping into burlesque shows, haunting a local poolroom, learning ragtime, showing an alarming interest in girls. His grades suffered. His mother disapproved and despaired when he left high school in his senior year, abandoning her dream of his becoming a painter in favor of the faster world of jazz. (He gave up art but remained faithful to

Ellington engages his 1930 Cotton Club orchestra with a tune. Members flanking him include (clockwise from left): Freddie Jenkins, trumpet; "Cootie" Williams, trumpet; Sonny Greer, drums; Arthur Whetsol, trumpet; Juan Tizol, trombone; Wellman Braud, double bass; Harry Carney, baritone saxophone; Freddy Guy, banjo and guitar; Barney Bigard, clarinet; "Tricky Sam" Nanton, trombone; and Johnny Hodges, alto saxophone.

color all his life; from "Lady in Blue," "Mood Indigo" and "Magenta Haze" to "Blue Rose" and "Blue Cellophane," it would suffuse his music.)

Ellington quickly picked up the tricks of the ragtime trade. "Any piano player in D.C. was approachable," he recalled. "If you were to ask, 'How'd you do that?' they would stop whatever they were doing and play it again." He learned from schooled and unschooled musicians alike, "leaning over the piano with both my ears twenty feet high."

At 19, he married a former high school classmate, Edna Thompson, and the couple had a son, Mercer, the following year. Duke's music now had to support a family. He played for embassy dances and elegant parties,

Mr. Ward, a historian, was principal writer of a TV biography of Ellington, "Reminiscing in Tempo," shown as part of the PBS series The American Experience.

gathered around him a circle of gifted young musicians whom he called "The Washingtonians," and in 1923 moved with them to New York where they struggled along playing speakeasies–Barrons, the Plantation, the Cameo, the Kentucky Club. They were appearing at the Kentucky Club in 1925 when an ambitious young song publisher named Irving Mills signed them up. For many years Mills would book the band, arrange recording sessions, handle publicity and try to ensure that Ellington and his orchestra be treated with as much dignity as any black artists were given in that segregated time. He also took official credit–and a hefty share of the proceeds–for songs that Ellington alone had written, and Ellington finally dissolved their partnership in 1939.

Ellington really arrived in 1927 when he was booked into the Cotton Club, Harlem's most fashionable nightspot, and later began broadcasting from there reg-

Duke, who worked with the jazz singer Billie Holiday in a 1935 film short entitled *Symphony in Black,* called her the "essence of cool."

Ellington and trumpeter Louis Armstrong rehearsed "Long, Long Journey" in 1946. It was the first studio recording they made together.

Ellington and Tony Bennett appeared in the 1966 TV special *The Best on Record.*

Ellington, who won three Grammys for *Anatomy of a Murder* film score in 1959, appeared in the movie with Jimmy Stewart.

In 1958 Queen Elizabeth II asked Duke when he had first toured England. "Years before you were born," was the flattering answer.

ularly over network radio. At first, Mills used a gimmick to advertise Ellington that startled his family. Some of the band's numbers were billed as "jungle music," and its early recordings–"Black and Tan Fantasy," "East St. Louis Toodle-Oo," "Creole Love Call" and "Mood Indigo"–were filled with exotic growls and smears from the brass section. Certain critics were appalled, but the radio public loved it, and Ellington was on his way.

His success permitted him to show his gratitude to the person he believed most responsible for it. "Edward was very attached to his mother," his sister says. "Everything was for his mother." He showered her with gifts–ropes of pearls, a fur coat, a gleaming Pierce-Arrow (and a chauffeur to drive it)–and refused to listen to her protests at his extravagance. "Mother," he said, "if you don't take these things, I won't work."

Her attachment to him was just as strong as his to her. She liked to follow him from engagement to engagement in the limousine he'd insisted she accept. "After a couple of thousand people had stopped applauding," his sister says, "my mother was always *still* applauding." Not long after he left for New York, their mother began to develop asthma–which vanished in 1930, the moment Ellington sent for her and his father to come to New York and live with him. Thereafter, according to her daughter, she was happy to be caring and cooking for her son again, waiting each day for him to come through the door and shout, "Mother, I'm home to dine!"

Her death in 1935 affected Ellington so deeply that for a time he was unable to concentrate on his music. Finally, he found solace in writing a new extended work, "Reminiscing in Tempo," in which he managed to express both his grief at his mother's death and his longing for the good times they had had together. Even then, according to his son, for years to come he marked the anniversary of his mother's death with bouts of heavy drinking.

It is evidence of the astonishing richness and variety of Ellington's music, and the unique artistry of the men he paid to play it, that critics differ widely as to just which period of his career should be considered his best. But certainly, few bands rivaled the one he led from 1938 to 1942. It was during this time that the brilliant young

Playful Danny Kaye handed Duke the winner's trophy in 1945 at an annual swing music contest that was put on by *Esquire* magazine.

During a 1950s visit to the White House, Duke presented President Harry Truman with the original score for his tone poem "Harlem."

Richard Nixon awarded Ellington the Presidential Medal of Freedom in 1969.

At 70th-birthday party, Duke doffed hat in style created by Maurice Chevalier (left).

composer-arranger-pianist Billy Strayhorn joined the band. He was small and self-effacing–called "Strays" and "Swee' Pea" by his friends–and content to let Ellington take the bows, but the two men's musical sensibilities proved so perfectly matched that even they were sometimes unsure as to just who had written what. And they shared the same fascination with writing for the star instrumentalists that Ellington had lured to his band. Saxophonists Johnny Hodges and Harry Carney; trombonists "Tricky Sam" Nanton, Juan Tizol and Lawrence Brown; trumpeter "Cootie" Williams and cornetist Rex Stewart; bassist Jimmie Blanton; clarinetist Barney Bigard; and the Kansas City tenor saxophonist Ben Webster–each had special strengths and an utterly distinctive sound. Ellington and Strayhorn always wrote with individual artists in mind; their music never sounded quite the same when others played it.

And neither of them could bear to wait more than a few hours to hear a new piece performed. So intense was that compulsion that Ellington kept his band together even during periods when it made no economic sense. He once ruefully explained why he did it: "I give the musicians the money and I get the kicks." He paid for those kicks for 50 years.

In 1943, having helped create the swing music that still gripped the country, Ellington tried to move beyond it. At Carnegie Hall he presented "Black, Brown and Beige," an ambitious 47-minute work that he conceived as "a tone parallel to the history of the American Negro." The audience loved it. Most critics did not. Jazz writers accused Ellington of abandoning the music that had made him famous. Classical critics dismissed his work as overblown dance music.

He would eventually become almost impervious to critics and criticism. "I don't respect [jazz] criticism," he once told an interviewer. "When a critic hears jazz, he's hearing it for the first time . . . and he has no yardstick to measure it by."

Ellington's parents were largely responsible for the remarkable serenity with which he usually faced the world, but the black community in which he grew to young manhood had reinforced his self-confidence. Washing-

Ellington and his longtime companion Beatrice (Evie) Ellis attend the premiere of *Hurry Sundown* in 1967.

Duke gets "chased" on a Hollywood lot during a break in the filming of *Check and Double Check* for RKO in 1930.

ton was the center of black cultural life in America then, the home of black lawyers, judges and other professionals who saw to it that their children were taught to honor their past and look forward to a better future. "When we went out into the world," Ellington recalled being taught by his eighth-grade teacher, "we would have the grave responsibility of being practically always on stage, for every time people saw a Negro they would go into a reappraisal of the race. She taught us that proper speech and good manners were our first obligations, because, as representatives of the Negro race we were to command respect for our people. This being an all-colored school, Negro history was crammed into the curriculum so that we would know our people all the way back. They had pride there, the greatest race pride. . . ."

Ellington never forgot those lessons, never lost that pride. Throughout his career, from "Symphony in Black" in 1935 and "Jump for Joy" in 1941 to "Black, Brown and Beige" and "A Tone Parallel to Harlem" in 1951 (often introduced by Ellington with the promise that it would "tell all the good things about ourselves") and his 1963 musical, *My People*, he sought to capture the African-American experience through music.

But even that was not enough for him. Ellington would prove too broad-gauged an artist to restrict his curiosity to any one group or any one culture. An interviewer once made the mistake of asking him whether he saw himself as a spokesman for his people. "That's a strange question," he replied. "My people . . . Now which of my people? I'm in several groups. I'm in the group of the piano players, I'm in the group of the listeners. I'm in the group of the people that have general appreciation of music, I'm in the group of those who aspire to be dilettantes, I'm in the group of . . . what? Oh yeah, those who appreciate Beaujolais."

He preferred to call his art "American music," not "jazz." It was meant to be "beyond category," in the phrase Billy Strayhorn coined in praise of the artists he and Ellington most admired. It encompassed everything he saw or heard. Even the briefest sojourns abroad yielded sounds that he would hurry home to incorporate into new compositions. His two "Far East" suites and his "Afro-Eurasian Eclipse," completed after whirlwind State Department tours of foreign capitals, include Indian, Turkish, Japanese, Arabic, even Australian aboriginal elements. In music, he often said, there should be "no walls"; he wanted to belong not to "a people" but to "the people."

That was not easy in the Jim Crow era, when buffoonish caricature was not merely expected of but demanded of any African-American performer who hoped to attract whites as well as blacks. Ellington refused to play along. Even in the scratchy old film of him enjoying his first real success at the Cotton Club–surrounded by gyrating chorus girls wearing some designer's patronizing notion of African costume–he remains somehow set apart in his white dinner jacket, invincibly dignified.

Nothing demeaned Duke Ellington because he refused ever to be demeaned. When white hotels would not take in his band, Ellington hired two private Pullman

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Sandy Milne holding forth on the pistols.

The men, a brutish lot, were clearly intent on dirty doings.

The scene was the desolate inn at Cock Bridge, in the Highlands. George Smith, maker of The Glenlivet single malt Scotch, was on his way home from a sale of his much prized whisky, his money belt stuffed with gold sovereigns.

Also at George's belt, fortunately, were a pair of hair-trigger pistols, given him by the laird of Aberlour. Before the men could jump him, he cocked one of the pistols and fired into the peat fire. A cloud of white ash filled the room. By the time it had cleared, George was on his horse and well away.

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cars for himself and his men and lived in comfortable isolation in the train yards. "That was easier," he once explained, "and avoided any unnecessary contact with *objectionable* people." The contrast between the adulation he received onstage and the segregated world into which he was plunged the moment the lights went down might have crushed a less serene individual. "Of course," Harry Carney recalled, "all the places we played down there [in the South], they were happy to hear the band. The drag was they'd be screaming and applauding and afterward you'd have to go back across the tracks. One jump I'll never forget. In 1933, we jumped from Paris, France, to Dallas, Texas, for a six-week theater tour. In Europe we were royalty; in Texas, we were back in the colored section. It was some adjustment, but we were young and could take it."

Ellington took it all his life, refusing even to acknowledge slights. When word got out in 1965 that the overseers of the Pulitzer Prizes had denied him a special lifetime award recommended by the judges, he professed not to mind. "Fate is being kind to me," he said. "Fate doesn't want me to be famous too young." He was then 66 years old.

He was an admirer of Martin Luther King jr.'s and a member of the NAACP, and once got himself arrested alongside some college students in a Baltimore sit-in, but he was an artist, not an activist. He was content to make his statement through his music. At a backstage press conference held sometime during the 1960s, an impatient young reporter asked him what he thought of the new slogan "Black is Beautiful." "I wrote 'Black Beauty' in 1928," Ellington snapped, and called for the next question.

His dislike of unpleasantness was legendary. He rarely said a word if a musician showed up late or had been drinking, but during that evening's performance he could be counted on to set a breakneck tempo, then call upon the guilty party for solo chorus after chorus. He avoided firing anyone, preferring simply to freeze out the offender until the man got the idea and quit on his own. "He was never direct with anybody about anything," his sister remembers, "because, he said, 'I don't want to think about unlovely things . . . I want to think about beautiful music.'" Occasionally the tensions within the band showed. I was one of thousands who over the years witnessed a sort of ritualized parody of one musician's perennial unhappiness when the audience reacted with special enthusiasm to Johnny Hodges. Sometimes Hodges would turn toward Ellington and rub his thumb and forefinger together, as if to say he was underpaid. Ellington, imperturbable as ever, would just count off the next tune.

More than 800 musicians appeared with his orchestra during its half-century on the road. Few were allowed to get too close. A lifelong hypochondriac, wherever he went he lugged with him a doctor's bag filled with a pharmacopoeia of vitamin pills prescribed by the man who may have been his closest friend, his physician Arthur Logan. And he was profoundly superstitious, insisting that every window be firmly closed; refusing to tolerate peanuts or newspapers or whistling in his dress-

Composer-arranger Billy Strayhorn collaborated with Duke for 28 years. Their styles blended so well that some found it hard to distinguish their work. Ellington called him "a great security."

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Memorabilia from Smithsonian collections include posters, manuscript in Ellington's hand, signed picture.

ing room; never wearing brown because he had been wearing it the day his mother died; and loathing the color green because, he said, it reminded him of grass–and cemeteries.

Just as he could not bear to wait to hear played the music that filled his mind, his other appetites demanded instant gratification too. He dumped packet after packet of sugar into the endless Coca-Colas he guzzled late in life to give him more energy, and he sometimes downed three quarts of ice cream at a sitting, one chocolate, one vanilla, one strawberry.

His marriage ended early and acrimoniously, though he and Edna never did get a divorce. Later, he had a long relationship with a former Cotton Club showgirl named Beatrice (Evie) Ellis, but it was not allowed to interfere with his other liaisons. "It was shocking" how women threw themselves at him, his sister observes. He was rarely an innocent bystander, routinely using lines that would have gotten a less magnetic man laughed from the room. "I'm so jealous of your frock," he'd say to a woman he'd never met before, and when she'd ask him why, he'd answer, "Because it's closer to you than I will ever be." His prematurely gray-haired son, Mercer, was allowed to join his trumpet section on the condition (or so it was said) that he never publicly address him as "Pop" lest it frighten off the women who often crowded his dressing room.

But his music really was his mistress. Nothing was allowed to intrude on it for long. He wrote melodies everywhere and anytime, scribbling furiously on the back of an envelope as his plane came in for a landing, worrying the keys of his portable piano in his hotel room into the early hours of the morning. He liked to pretend to be a reluctant composer. He couldn't write anything unless he had a deadline, he told interviewers (it wouldn't have done for him ever to seem anything but unhurried and unruffled), so he always made certain he had plenty of deadlines to meet.

If critics rarely fazed him, neither did the fickleness of the public. The era of the big bands had ended by the late 1940s. The jazz public had turned to small groups. The teenage children of the teenagers who had once crowded the floor to dance to Ellington's music now preferred rock'n'roll. One by one, Ellington's rivals left the road, but he kept at it, unable to imagine life without the orchestra that made his compositions more than mere jottings on paper. When he played the Aquacades in Flushing Meadows, New York, in the summer of 1955, Ellington found himself billed after the water ballet.

The Newport Jazz Festival the following summer marked the beginning of a full-scale Ellington renaissance. He had written a suite especially for the occasion, but it was a new rendering of an old tune, "Diminuendo and Crescendo in Blue," that changed everything for him. It was a driving crowd-pleaser in any case, but this evening the band was in particularly good form. Spurred on by Ellington, the tenor saxophone star Paul Gonsalves took the spotlight and held it for six and a half minutes–27 blazing choruses that brought the audience roaring to its feet and drove dancers into the aisles. When an anxious backstage official signaled Ellington to stop playing before there was a riot, Ellington just smiled. "Don't be rude to the artists," he said.

"That's a dangerous question"

There was no riot. The crowd demanded four encores. Ellington soon appeared on the cover of *Time*. A recording of the concert became a best-seller, and the Ellington orchestra was back where it belonged. Shortly afterward Ellington was asked how old he was. "That's a dangerous question," he answered with his sly grin. "I was born in 1956, at the Newport Festival."

In the spring of 1972 Ellington, a heavy smoker, was diagnosed with lung cancer. Religious music had begun to interest him long before the onset of his illness. He had always been privately religious, wearing a gold cross around his neck after his mother died and reading the Bible through at least seven times. But now he seemed consumed with the need to spell out his religious beliefs

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in his work. One friend thought he "was playing his own way towards heaven." Ellington himself once said he was "a messenger boy" for God. "You can jive with secular music," he told someone who'd asked why he seemed so especially demanding about how his religious works were played, "but you can't jive with the Almighty."

He had already performed two sacred concerts, complex, ambitious works in which the orchestra was augmented by choirs, classical soloists, even a tap dancer. Now he hurled himself into still another, which he hoped to premiere at Westminster Abbey in London. "He knew it was his last shot," his son remembers, "and he wanted it to be good." "The music kept him going," his granddaughter Mercedes Ellington has recalled. "This is what made him go through all the pain, the suffering of the last part of the sickness, of being out on the road. It was the driving force for him. It was something he had to do, every day."

On the day of the Westminster concert, Ellington was frail and thin and uncharacteristically curt with the press, objecting to the presence of TV cameras at rehearsal, unwilling to answer questions. The music was all that mattered. "Every man prays to God in his own language," he told the audience before the concert began, "and there is no language which God does not understand."

The concert went well, but Ellington nearly collapsed halfway through. Soon afterward he began canceling engagements. Even when it was clear to those closest to him that he would never again leave his hospital room, he insisted on having his electric piano brought to him so that he could keep working, composing a comic opera to be called *Queenie Pie*, finishing up *The Three Black Kings*, a piece that was later choreographed by Alvin Ailey for his dance troupe. "I have so much to do," he said not long before he died, "so much more I have to do."

As if seeking divine inspiration, Ellington gazes off into space while composing a new piece at the keyboard. As he grew older, he gravitated toward religious music. "When I play sacred music," he said, "I play this for me."

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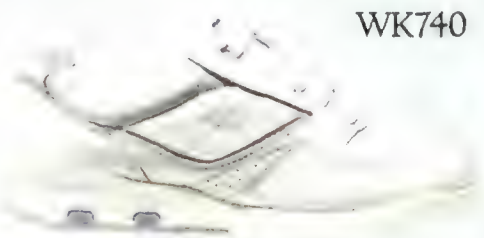

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By Robert Wernick

At Monticello, a big birthday for the former owner

To mark the 250 years since Mr. Jefferson's birth, his furnishings and his paintings, long in exile, have been admiringly assembled

Thomas Jefferson Memorial Foundation

A youthful 45, Jefferson had this portrait painted by John Trumbull when he was Minister to France in 1788. Opposite: the shapely and spacious grounds he laid out, and Monticello itself, are seen from on high.

"All my wishes end," he wrote, "where I hope my days will end, at Monticello."

Monticello, in south central Virginia, was Thomas Jefferson's home for the last 56 years of his life. He spent much of his time in 40 of those years building it, transforming it, tearing it apart and putting it back together again. He knew and loved every inch of house and property. When he was Minister to France, he filled 86 crates with furniture and works of art for his rooms, and in 1789 brought fruit trees back with him on the boat home. When he was President of the United States, he pined for Monticello and was overjoyed when he could take the four-day journey required to get there from Washington, crossing four rivers and numerous streams, most without bridges or ferries. He designed some of the things there himself, and supervised everything down to the last detail, from the half-million bricks he had baked in his own kilns to the sewing of the crimson mantua counterpane he spread over his bed. Even with all the political distractions, said one of his overseers, "Mr. Jefferson always knew all about everything in every part of his grounds and garden. He knew the name of every tree and just where one was dead or missing."

Nearly everything at Monticello was sold at auction after his death and dispersed to the four winds. But for the 250th anniversary of his birth this spring, the Thomas Jefferson Memorial Foundation, which for 70 years has been doing a heroic job of restoring the house and grounds, has been assembling paintings, furniture, scientific instruments and natural history specimens that he originally collected. More than 150 items great and small have been coaxed from museums, universities, historical societies and private homes. And for the next eight months during a special exhibition called "The Worlds of Thomas Jefferson at Monticello," they will all be back where they once belonged.

The Peabody Museum in Cambridge, Massachusetts, graciously lent the superb collection of Indian artifacts presented to Jefferson by Lewis and Clark during their historic mission to the Northwest on which he dispatched them in 1804. Its most notable treasure is a buffalo robe, with a painting of a battle between the Mandans and the Sioux. The Pennsylvania Historical Society produced the famous astronomical clock that ex-President Jefferson had built after his old less-accurate timepieces caused him to miss the start of the eclipse of 1811. One Jefferson descendant in New Mexico sent three stone figures from the pre-Columbian Indian culture of Mississippi. Another sent one of Monticello's original dining room tables. From Howard University came a little three-inch-high bell that Jefferson's wife, Martha, on her deathbed, gave to her 9-year-old slave girl Sally Hemings. More than 30 of the original paintings and prints

now crowd the parlor walls. The floor of the entrance hall has even been repainted the "true *grass*-green" that Gilbert Stuart recommended to Jefferson, and the walls of the family sitting room are indigo once again.

Altogether, the preparations will provide the 600,000 visitors who are expected to visit Monticello in this 250th-anniversary year almost exactly the same bustling, crowded, perpetually stimulating scene as greeted the earlier Americans who drove up dusty, rutted roads and forded unruly streams to visit the aging statesman.

Both Monticello and Jefferson are properly regarded as uniquely American possessions. But not only was Jefferson a British subject for the first 34 years of his life, he was also, in some respects, for all his days a typical English country gentleman of his time. He would not have appreciated the comparison. He kept a French chef ("He has abjured his country's victuals!" cried the superpatriot Patrick Henry), stocked his cellar with champagne and Bordeaux wines, collected French art, relished French conversation, and in the titanic struggle between England and France that went on through most of his life, he generally leaned to the French side. "Mr. Jefferson," reported David Erskine, the British envoy to Washington in 1808, "never spoke with approbation of anything that was British . . . never lost an opportunity of showing his dislike to Great Britain."

Erskine, however, was a bad reporter. Jefferson in fact found much to admire in England. His choices of "unquestionably the three greatest men the world had ever produced" were Francis Bacon, Isaac Newton and John Locke, respectively apostles of reason, science and liberty, Englishmen all. Portraits of the three hung in his parlor at Monticello. What he hated was the English upper class, its snobbery, its stiff code of manners, its contempt for the people and its support of an established church—all anathema to a radical democrat and freethinker like Jefferson.

Diplomatic Reception Rooms, U.S. Department of State

Rarely seen portrait of his daughter Martha, at 17, came from the collection of the U.S. State Department.

But politics and religion and manners aside, he had much in common with the great nobles and large landowning squires who formed the ruling oligarchy of England. Like them, he was a big landowner: he inherited 5,000 fertile acres from his father and received 11,000 more through his wife, Martha Wayles. Like them, he was a collector. He loved good horses and good claret, was outspoken and independent-minded, and a devotee of Italian music and scientific farming. He shared the public spirit of those men who were willing to tear themselves away from their fox hunting and their picture collecting long enough to sit in the House of Commons and establish the principles of parliamentary government and civil liberty, as well as pick up a worldwide empire in what has been described as a fit of absentmindedness.

Above all, he was like them in his passionate devotion to his land. It was said of Sir Robert Walpole, who as Prime Minister of Great Britain regulated the affairs of much of the world for more than 20 years, that when the mail pouch came to his London office the first letter he opened was the one from the gamekeeper of his family

Robert Wernick has done more than a score of stories on historic figures for SMITHSONIAN. *Among them: Talleyrand, Spain's Philip II, Prince Eugene of Savoy.*

Both: Massachusetts Historical Society

Portrait of George Washington was done in 1784, his last year as Commander in Chief of Continental Army.

Unusual likeness of his friend Lafayette, by Joseph Boze, hung near Washington in Monticello's parlor.

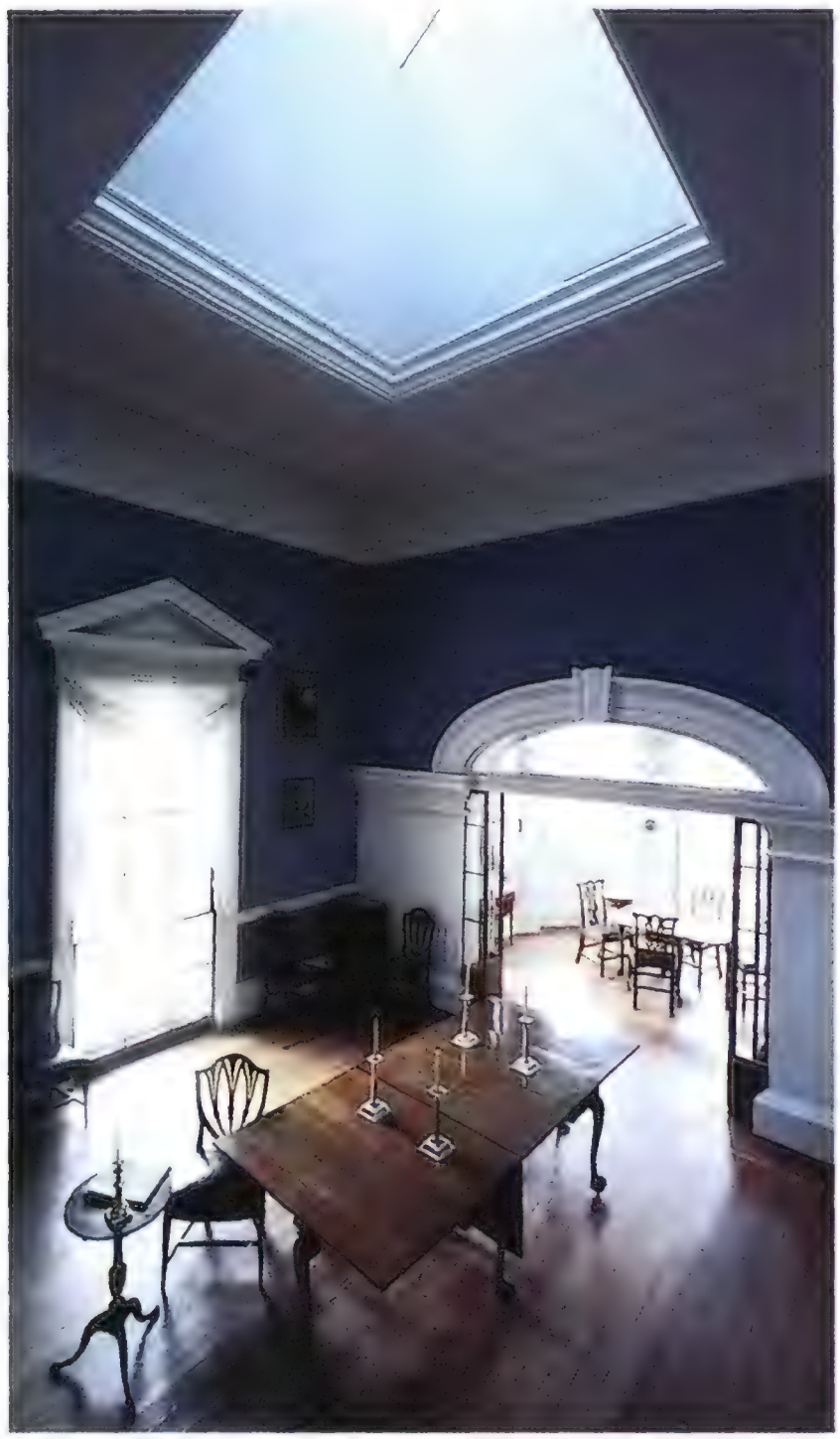
place in Norfolk. Walpole would have understood how Jefferson, while serving as Minister to Paris before the French Revolution, would take time out to write back to Virginia asking if the vines he had planted at Monticello were producing a wine fit to drink.

The English country gentleman took pride in crowning his fair lands with a noble house, one that would shelter his family in elegant comfort and also serve as a social and cultural center for the whole neighborhood. Jefferson had picked out his own site for such a house shortly after he came into possession of his father's estate at the age of 21. It would be on land leveled off at the top of a peak rising hundreds of feet above a plain in the valley of Rivanna. He called it "Monticello," Italian for "little mountain."

At about the same time he began collecting and studying such books as James Gibbs' *Book of Architecture* and *Rules for Drawing the Several Parts of Architecture* and Giacomo Leoni's *The Architecture of A. Palladio*, works intended as practical guides for gentlemen who lacked the money or lived too far from London to get the services of a top architect, but who still wanted a house that would meet the standards laid down by Andrea Palladio. Palladio was the 16th-century Italian who made a rigorous study of old Roman ruins and whose classical hand lay heavy on much that was built in 18th-century England. Jefferson never received any formal training, but his exceptionally keen eye noted interesting details in buildings wherever he went at home and abroad. And he read everything available. In one of Jefferson's architectural studies he noted that "the pediments should be in height two-ninths of their span," a rule laid down in Palladio's own works but one which his English followers had neglected.

Monticello was meant to be a traditional Palladian building, yet it had highly individual features, first and foremost its location. Palladio had sensibly pointed out two centuries before that building a house on a mountaintop would be an impractical folly, and Jefferson paid dearly–in the transport of tons of stone, brick and timber–for defying the master's advice. Once the building was up, Jefferson could not find enough water in the well for the needs of what amounted to a small village–family, staff and guests–so additional water had to be hauled up by cart from hillside springs. Life could not have been comfortable up there before the building was completed in 1809, and it is painful to think of young, pretty Martha Jefferson arriving to start her honeymoon in an unlit, unheated house surrounded by three feet of snow and then living there, with her hus-

A practical man's accessories, clockwise from his pocketwatch: wristband, knife, watch fob, spectacles.



In the dining room, formal dinner was served from 3:30 to 5. Beyond is a tearoom for smaller family meals.

band away most of the time governing Virginia or writing revolutionary prose. Martha was to live in a house of never-quite-finished walls and a never-quite-finished roof, breathing brick and plaster dust, being buffeted by savage winds, bearing six children in ten years and losing four of them, till she died in 1782, not yet 34.

But for Jefferson, there were compensations enough for all the discomfort. "How sublime it is," he said, "to look down into the workhouse of nature, to see her clouds, hail, snow, rain, thunder, all fabricated at our feet." Besides, nothing quite like Monticello had ever been built in Colonial America. The structures that Jefferson could see around him on his travels in the state could be very pleasant to look at, though to his stern classical eye they were uncouth and provincial. They tended to be built in sheltered lowlands, where people could huddle in rectangular rooms with small rectangular windows to shield them from the wild environment into which they had poked their way. The wilderness was not in those days regarded as a recreational playground. The European immigrant's first impression of the American landscape has generally been one of excess. As W. H. Auden wailed in 1946, it is all "either much too hot or much too cold or much too wet or much too dry . . . And then—oh dear! the *insects* and the *snakes* and the *poison ivy*! The truth is, Nature never intended human beings to live here."

A little mountain covered with trees

Jefferson did not fear the wilderness and was prepared to civilize it. He found his little mountain covered all over with age-old oak and hickory and chestnut. Settling down in the middle of it, he turned the forest into a park. This was in the best neoclassical English tradition. Joseph Addison had written in 1712, "A man might make a pretty Landskip in his own Possessions." It was a call to English landowners to bring the works of man and nature into one harmonious design. Jefferson had the great open spaces of America to work with: he could make his "Landskip" encompass boundless virgin forest and the Blue Ridge Mountains. Proudly in the middle of it lay his farm of Monticello, 300 acres of hillside and riverside land divided according to the most modern theories of crop rotation into seven fields each producing a different crop every year. He separated the fields by planting rows of peach trees, as many as 700 trees, but he did not want any visible divider between his fields and orchards and the decorative lawn and gardens around the house. So instead of a fence that would have broken the clean sweep of his views, he dug a ditch and covered it with a cattle guard shaped like a wooden fence laid flat across it, where no cows would dare to step.

The same taste for drama and contrast went into the house. The fashionable architects of Jefferson's day

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Octagonal table is shown in Jefferson's "Book Room," which housed some of his more than 7,000 volumes.

Handy polygraph allowed Jefferson to make an exact copy of thousands of letters as he was writing them.

aimed at a stately symmetry. So did Jefferson, but he did it in a very individual and dynamic way. He wanted the eye of the beholder to be always moving in and out. The west portico, the private entrance to Monticello, is a complex pattern of geometrical shapes–triangular, rectangular, octagonal. The straight lines play off against the gentle curves of the stone pillars, the balustrades on the roof and the fanlight window in the pediment.

The view through the double doors at this entrance draws the eye of the visitor up the broad steps, through the parlor and the entrance hall, straight through the house to the doors of the east portico, which open on half of Virginia. There is never a firm boundary between the house and surrounding nature. The windows that start at floor level on the ground floor and give the impression that there is only one towering story (there are really three) bring in a flood of light and offer spectacular views in every direction.

Experimental seedlings from Italy

The exterior wall of Jefferson's study had large windows, so that while he sat browsing through his books–20 at a time, according to an eyewitness, picking them up as he needed them–he could look out into the greenhouse to see how his experimental seedlings from Italy were doing, or check the progress of the gooseberries from the upper Missouri basin that he served at tea.

The master of Monticello was always up to something. "It is wonderful," he told his daughters, "how much can be done, if we are always doing." The rooms of Monticello, all of different shapes and sizes, breathe a purposeful energy. Jefferson may have liked to indulge himself in the odd delusion that Monticello was a haven of tranquillity, a refuge from the "tumult of the world," but it is hard to see how he could have had a moment of real repose in all those 56 years. His working day began when it was light enough to see the hands on the marble obelisk clock that had been made to his specifications in Paris and was marked by clangs from a Chinese gong on the roof. The gong was powered by the great clock in the entrance hall, also of Jefferson's own design and which he wound every Sunday. The mechanism was controlled by 50-pound cannonball weights that descended slowly throughout the week, sinking through holes in the floor on Friday to spend two days, sinking still, in the cellar.

When he was not busy designing things like the dumbwaiter that brought his wine up from the cellar, he might be writing one of his 20,000 letters or reading one of the 7,000 books in the seven languages, starting with Greek and Latin, that he had mastered. His collection was probably the largest private library in America. When Jefferson sold it to the government in 1815 for less than $25,000, it became the nucleus of the Library of Congress (SMITHSONIAN, April 1980), which had been destroyed

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in a fire set by invading British troops the year before.

He was always designing improvements: a set of venetian blinds to regulate the light in the greenhouse; a superior form of moldboard for a plow that won a gold medal from a French agricultural society in Paris in 1802. He regularly tested the soil for its suitability to his various crops and observed the heavens with the aid of his achromatic telescope. "We cannot know the relative position of two places on earth," he wrote, "but by interrogating the sun, moon and stars."

He was fascinated with the new world of fossils, then being studied in a scientific way. He collected them and wrote about them, and placed his most impressive mastodon bones in the entrance hall. The bones of a great beast found in western Virginia particularly intrigued him. At first he thought it was a prehistoric lion but discovered that it was a giant ground sloth. Its scientific name is *Megalonyx jeffersonii*. When he heard that religious leaders were claiming that seashell fossils found at altitudes of thousands of feet must have been deposited there by Noah's flood, he quickly calculated the amount of moisture present in Earth's atmosphere and showed that if every drop of it turned to water, it would not raise the level of the seas more than 52.5 feet.

Mrs. Joseph C. Cornwall

Jefferson bought detailed engraving of scarlet macaw by French naturalist François Levaillant in Paris.

In France, when he heard that the Count de Buffon, the great French naturalist, was claiming that the mammals of the Americas were mere stunted versions of Old World species, and that the American moose was really a reindeer, Jefferson sent orders to the New World to have a moose shot and the skin and skeleton shipped over to Paris, and then delivered it himself–somewhat the worse for four months in transit–to Buffon's house.

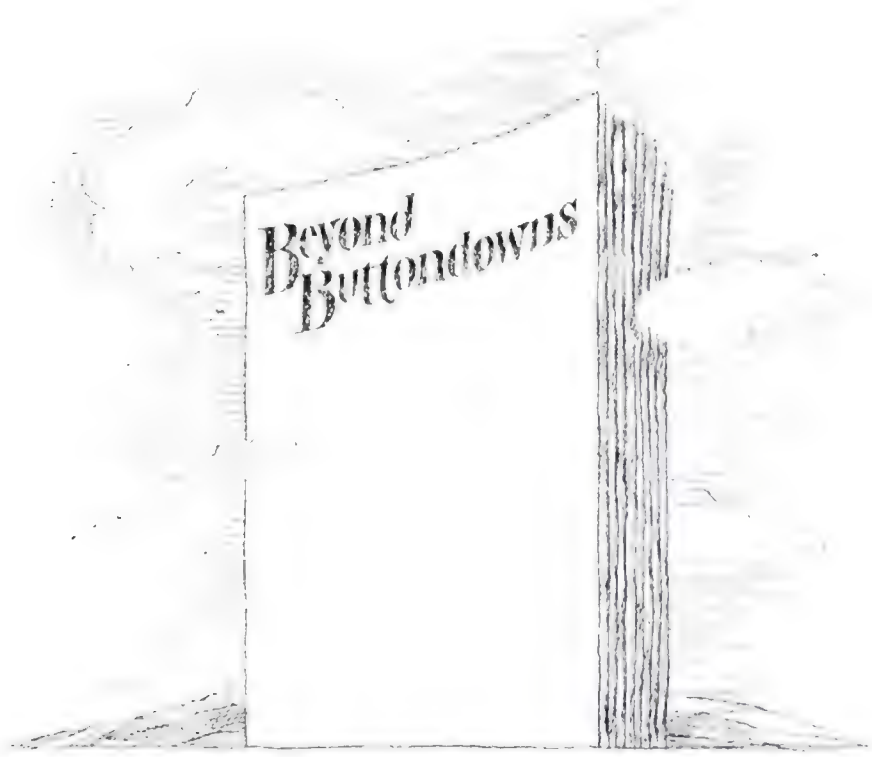
After seeing the dome being built over the wheat market in Paris, as well as the dome on the Hôtel de Salm, he decided that something similar would fit as a crown to Monticello. He found in the works of the 16th-century architect Philibert de l'Orme a method of construction so simple that he could teach it to a "very coarse and uninformed carpenter who never heard of a dome before." Because he insisted on keeping good files, he used a kind of carbon paper but threw it away when he discovered "the greatest invention of the present age" in the form of a polygraph, which allowed him to write with two pens at once and keep clean and accurate copies of what he wrote.

From an ingenious Virginian he picked up an odometer to attach to an axle of his carriage, where it chimed every ten miles (he always liked to know just how far away he was from Monticello). When he came home from Paris in 1789, he brought with him a novelty that had intrigued him: some muskets with interchangeable parts. He was aware of the revolutionary possibilities and encouraged Eli Whitney to apply them to weaponry on a large scale. In 1798 Whitney got a contract to manufacture muskets by this method for the U.S. Government.

Machiavellian strategies now and then

He was a hundred years ahead of his contemporaries in concern for the fate of the Indian nations whose hunting grounds were being overrun by the irresistible surge of the pioneers. He was deeply impressed by the dignity and eloquence he observed in hunter-warrior cultures. The entrance hall in Monticello housed what amounts to the first native-American museum. Jefferson would have preferred to see the Indians survive and prosper by settling down to cultivate a fraction of the lands they wandered over, but when they failed to take his advice, he was capable of the Machiavellian strategies that expanding civilizations always employ to acquire land. In 1803 he wrote to Gen. William Henry Harrison, governor of the Indiana Territory, that he would be glad to see "the good and influential individuals among [the Indian tribes] in debt; because we observe that when their debts get beyond what the individuals can pay, they become willing to lop them off by a cession of lands."

Monticello was also an art museum, with 59 paintings, 20 sculptures, a score or more of historical maps. Scenes of the Revolutionary War hung on its walls, and busts of



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Thomas Jefferson Memorial Foundation

Silver cup, engraved "GW to TJ," was one of several that Jefferson made by melting down cups given to him by his friend and law teacher George Wythe.

Revolutionary heroes stood on pedestals scattered about its rooms. Jefferson could not resist having his own bust, much bigger than that of his archrival Alexander Hamilton, displayed opposite Hamilton's in the main entrance to the house. He filled the place with fine furniture, fine draperies, chinaware and silverware, and he personally designed the first parquet floor in America for his parlor. None of these furnishings were antiques. The people of that high-spirited time might admire the works of their ancestors, but they had none of the modern passion for preserving them intact. In 1786, when Jefferson and John Adams visited Shakespeare's house in Stratford-upon-Avon, they dutifully paid reverence to the Bard's armchair and, "according to custom," cut off a chip to take back as a souvenir. At home, Jefferson wanted good, serviceable contemporary pieces turned out by cabinetmakers in New York and Philadelphia. These were supplemented by furniture that Jefferson designed himself and had made by Monticello slaves.

Though this was a time when an individual still could pretend to universal learning, the extraordinary range of interests shown by Jefferson amazed his contemporaries nearly as much as it amazes us today. President John F. Kennedy, with some coaching from his historian-in-residence Arthur Schlesinger jr., once greeted a group of Nobel Prize winners at dinner by saying that there had never been such a concentration of talent in the White House since Thomas Jefferson dined there alone.

It was a pretty phrase but a somewhat misleading comparison. Jefferson would never have won a Nobel Prize. He had none of the specialized depth of the modern scientist, preferring to know a fair amount about an enormous variety of things. General Turreau, the French Minister, once reported that he had heard President Jefferson discuss 27 different subjects in a conversation that lasted half an hour. Jefferson was a perfect "dilettante." A word that was rather a term of praise in the 18th century, it meant someone who took delight (from the Italian *dilettare*) in all manifestations of the human spirit. He approached everything with the amiable, knowledgeable-amateur air that has been a hallmark of the British upper classes for the past three centuries. In 1759, just before he won half of North America for Britain in a decisive battle on Quebec's Plains of Abraham, Gen. James Wolfe recited Gray's "Elegy in a Country Churchyard," remarking that he would rather have written that poem than take the city that day. In the same spirit, Jefferson was always assuring friends that the "tranquil pursuits of science" meant more to him than all the great affairs of state, and that he would not give up Monticello "for the empire of the universe."

Any visitor to Monticello can see that Jefferson was a superbly talented amateur architect, and a tolerably talented amateur farmer, gardener, fiddler, cabinetmaker, astronomer and paleontologist. It is easy to envision him alone in his study, 20 books at his feet, his favorite mockingbird, Dick, perched on his shoulder to sing to him while he lets his thoughts roam. It is correspondingly easy to overlook the fact that this multifaceted amateur was also a thoroughgoing professional. He was a highly competitive politician, one of the most successful and tenacious this country has ever seen.

Forty years of public service

For more than 40 years he was in active public service: as delegate to the Virginia House of Burgesses (1769-79) and the Continental Congress (1775); Governor of Virginia (1779-81); Minister to France (1785-89); Washington's Secretary of State (1789-93); John Adams' Vice President (1797-1801); and President of the United States (1801-1809). During the later period he was the leading figure in forming and then directing an unlikely coalition of Southern country gentlemen and yeomen, Western backwoods farmers and Northern laboring men that drove the Federalists from power. The coalition took political skills of the highest order to create and was known in his day as the Republican Party. Though it has since changed its name, it is still very much with us. Only last November it won its 26th Presidential election with a candidate whose middle name is Jefferson.

In his years of retirement, Jefferson held open court at Monticello, welcoming, feeding, entertaining, charming and inspiring an endless stream of "people of wealth,

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fashion, men in office, professional men, military and civil, foreign ministers, missionaries, Indian agents, tourists, artists, strangers, friends." The house he delighted to show them around was not only a self-portrait of its enlightened builder, but a living emblem of the new republic he had helped call into being. Standing above the clouds, it mingled high ideals with up-to-the-minute labor-saving contraptions; it brimmed with optimism, curiosity, the willingness to try anything and an unbounded faith in the ability of an educated democratic people to solve problems.

Monticello also had a tragic flaw. This temple to science and progress had a shaky economic foundation. It could feed and even clothe its inhabitants (Jefferson liked to lounge around in a jacket made of wool from his own Merino sheep) but could not produce enough cash crops to pay for the Jeffersonian country-gentleman lifestyle. And it was worked by the most oppressive and regressive of labor systems, human slavery. Jefferson was a man who deplored slavery and entertained an optimistic hope that it would one day be abolished. Meanwhile there seemed to be no way to run a plantation in Virginia without slaves, though he might (like the translators of the King James Bible) persist in calling them "servants." He was able to free a handful, but most of them remained, and after his death at least 150 human beings had to be offered for sale with the rest of his property to pay his debts.

The conflict between ideal theory and uncomfortable fact tormented Jefferson as it did many of the Founding Fathers. With his revolutionary ardor he had helped rouse America against George III and was occasionally capable of bloodthirsty sentiments. (The tree of Liberty, he once wrote, needed to be refreshed regularly with the blood of tyrants.)

As a Southerner, Jefferson believed passionately in states', as well as individuals', rights and in keeping the power of the federal government strictly limited. This included the size of the Army and the Navy. But the only way to free the slaves, as it eventually turned out, was to have a federal government powerful enough to impose emancipation on the South.

Jefferson himself wished to be remembered, he said, for having written the Declaration of Independence and the Virginia Act for Religious Freedom, and for founding the University of Virginia. He might well have added the Louisiana Purchase, which was perhaps the most far-reaching service to his country.

It happened in 1803. Jefferson had sent emissaries, first Robert Livingston and then James Monroe, to Paris to offer $2 million, initially for trading rights at the mouth of the Mississippi or the whole port of New Orleans. Farmers and traders on the frontier needed to get their produce to the world. Napoleon Bonaparte, First Consul of the French Republic, which was then at momentary peace with England, had hoped to use New Orleans as the capital of a vast new empire in the Americas. He had sent over a powerful army commanded by his brother-in-law, General LeClerc. But revolt in Haiti—the first successful slave insurrection in the New World—and malaria upset his plans by wiping out LeClerc and most of the army. Suddenly another war with England loomed as well. Napoleon abruptly decided to give up his American dreams.

Within hours the French Foreign Minister, Citizen (formerly Bishop, later Prince) Charles-Maurice de Talleyrand, was offering the astonished Americans the whole of France's continental empire for $15 million. With very little hesitation, Livingston and Monroe accepted the offer.

But the treaty had to be formally accepted by the United States Government. For Jefferson, approving it meant a flagrant repudiation of the doctrine of states' rights, which was at the heart of his political philosophy. If the central government in Washington could do something like this, he wrote, for which there was no authorization in the Constitution, it meant that the Constitution could be turned into a blank paper. He approved the treaty nonetheless.

The day President Jefferson signed the authorization of purchase, the United States acquired all or most of the present states of Louisiana, Arkansas, Missouri, Iowa, Minnesota, North and South Dakota, Nebraska, Kansas, Oklahoma, Wyoming and Montana at a cost of less than 3 cents an acre. The squire of Monticello knew a bargain when he saw one.

Entrance hall was a minimuseum, with a mastodon jaw; bison, elk and moose antlers; an antique map; and busts of Jefferson, Voltaire and the French economist Turgot.

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THE STRENGTH OF EXPERIENCE

By Stanley Meisler

Say what they may, the feisty doctor had an artful eye

Wielding his throat-tonic fortune, Albert Barnes silenced the critics with a collection, now at the National Gallery, that speaks for itself

Hundreds of thousands of ordinary museumgoers around the world will soon gaze upon a bounty of art the sight of which was denied the Nobel Prize-winning poet T. S. Eliot, the sculptor Jacques Lipchitz, the architect Le Corbusier, the sharp-witted drama critic Alexander Woollcott and a host of other celebrities during the lifetime of Dr. Albert Coombs Barnes. Dr. Barnes, who died in 1951 at the age of 79, assembled the finest private collection in America of late 19th-century and early 20th-century European art, but he would not show it to just anyone. He relished refusing entry to well-known people who, for whatever reason, offended his capricious nature.

Woollcott, the model for–and sometimes the actor playing–the main role in the George S. Kaufman and Moss Hart play *The Man Who Came To Dinner*, once tried to gain entry by goading Barnes with a kind of outrageous joke: sending his request to see a few of the paintings in a collect telegram. Justifying his refusal, Barnes told the Philadelphia *Evening Bulletin*, "I understand that he portrays someone who comes somewhere for dinner and stays for weeks. I would be afraid if I let him come to see a dozen of my paintings he might stay to see the more than 1,000 in the collection." The repartee sounded like good clean fun, but Alexander Woollcott never did see the paintings. Eminent scholar Erwin Panofsky apparently did: a favorite story in art-history circles is that he finally got in by posing as someone else's chauffeur.

After the death of the collector four decades ago, a crack opened. The trustees of the Barnes Foundation,

Henri Matisse's eight-foot-wide *Joy of Life* is one of 80 masterpieces to leave the Barnes for the first time.

After bitter legal wrangling, the works were allowed to travel while their Pennsylvania home is renovated.

Dr. Barnes (above) loved Matisse and his little dog, Fidèle-de-Port-Manech, whose name he signed to angry letters. Opposite: Barnes featured Cézanne's *Card Players*, Seurat's *Models*, in a "wall-ensemble."

pressured by newspaper editorials and court suits, opened their galleries to the public for two and a half days a week most of the year. But masses did not descend upon the extraordinary collection of 180 Renoirs, 69 Cézannes, 60 Matisses, 44 Picassos, 18 Rousseaus, 14 Modiglianis, 7 Van Goghs and marvelous works of Seurat, Soutine, Pascin and other modern masters.

Obstacles remained to keep the collection mysterious and private. Attendance was limited. Visitors felt like intruders. According to one account in the 1980s, "the massive front gate is still guarded by dragons." Once inside, visitors found it extremely difficult to make sense out of the variety of paintings and their seemingly haphazard display. Since the Barnes prohibited the color reproduction of any of the paintings, newcomers did not know what to expect anyway.

But revolutionary change has come in the past few years as a new board with new attitudes has taken control. The board, the majority of which is now nominated by Lincoln University, a predominantly African-American school founded in the 19th century as the "Princeton" for freed slaves, has decided to pull the Barnes Foundation as far as legally possible into the mainstream of American museums. This has spawned much controversy. A handful of former students at the Barnes Foundation and other traditionalists picket the board's public functions and have filed suit to stop some of the modernization. But the board is resolved to go forward.

In its most dramatic break with the past and the strictures of Dr. Barnes, the board, with court approval, is loaning 80 paintings for a worldwide tour while the collection's galleries are renovated. The exhibition, "Great French Paintings from the Barnes Foundation: Impressionist, Post-Impressionist, and Early Modern," is at the National Gallery of Art in Washington from May 2 to August 15 and then goes on to the Musée d'Orsay in Paris, the National Museum of Western Art in Tokyo and finally to the Philadelphia Museum of Art. Included are spectacular pieces that few in the world have seen, such as Matisse's *Le bonheur de vivre* (*Joy of Life*) and Seurat's *Models*. In another defiance of Barnes tradition, a catalog with color reproductions of the paintings will be sold.

The tales of Dr. Barnes and his paintings make up one of the grand sagas of private collecting. When he died, the obituaries described him as a collector with "a talent for invective," and an imposing figure who kept the American art world in "paralyzing terror." The obituaries also hailed the greatness of the collection.

Albert Barnes was the coinventor and chief promoter of Argyrol, an awful-tasting silver nitrate solution that was swabbed on the throat of almost every sniffling child in America before the age of antibiotics. Argyrol gave Barnes the money and power to assemble his mighty collection of modern art.

Born in a working-class section of Philadelphia in 1872, Barnes was the son of a former butcher who had lost his right arm in a Civil War battle and then found work as a letter carrier. Young Albert won admittance to Central High School, Philadelphia's special school for the brightest of the poor, and then moved on to the University of Pennsylvania, where he earned a medical degree while supporting himself playing semipro baseball. After studying chemistry in Germany for 18 months,

Barnes settled down in Philadelphia; he took a job with a pharmaceutical company and married Laura Leggett of Brooklyn, New York.

He and a German-born scientist at the company, Hermann Hille, developed Argyrol while working together at night. In 1902, the two young chemists set up their own company. Argyrol was an overnight sensation. Within two years, both Barnes and Hille were wealthy, but they soon began to irritate each other. Barnes finally filed suit to dissolve the partnership and, with the court's approval, bought out Hille for $350,000.

As a young man, Barnes had tried his hand at painting, completing enough canvases to persuade himself that his talents lay elsewhere. Once he was rich, collecting became a natural vocation. Not sure at first of his judgment, he called on a high school classmate and baseball teammate, the artist William J. Glackens, for help. Barnes sent Glackens off to Paris in 1912 to buy $20,000 worth of paintings for him. Glackens came back with 20 paintings including a Renoir, a Van Gogh, a Cézanne and a Picasso. Two of the Glackens purchases, the beginnings of the great Barnes collection, are included in the National Gallery exhibition: *Joseph-Etienne Roulin* (p. 100), Van Gogh's light-drenched 1889 portrait of the elderly mail handler at the railway station in Arles, and Picasso's *Woman with a Cigarette* (p. 103), the 1901 portrait that led the artist into his Blue Period.

Under the tutelage of Glackens, Barnes began to understand the trends and moods of modern art. In a few months, he felt confident enough to set off for Paris on his own, the first of many trips there in his quest to assemble the finest collection in America. "I never saw Barnes tired," wrote the critic Waldemar George after accompanying the doctor on his rounds during one trip to Paris. "That man had such an appetite for painting and sculpture that he could forget to eat and sleep. And every day for the four or five weeks that he was in Paris it was the same." Often using the Paris dealer Paul Guillaume as a guide and agent, Barnes tried to meet as many artists as he could.

Intrigued by a canvas that he saw in a Montparnasse bistro in 1922, Barnes insisted on meeting the artist who painted it, Chaim Soutine, who had hung about the drunk and ailing Amedeo Modigliani before his death. The Lithuanian-born Soutine (SMITHSONIAN, November 1988), still raw in society, reluctantly dressed in his best suit and met the doctor. The painter concluded that the doctor was a boor and later told a friend, "I'll never

Stanley Meisler, who covers the United Nations for the Los Angeles Times, *frequently contributes to* SMITHSONIAN *on the arts and on culture.*

Joseph-Etienne Roulin (1889) is one of six portraits Van Gogh painted of the elderly postman at Arles. "He has...a tenderness for me such as an old soldier might have for a young one," the artist wrote to his brother.

forgive myself for having been idiot enough to go to such trouble." But Barnes bought a host of paintings for the then handsome sum of $3,000, elevating Soutine into the rare league of artists able to support themselves with their work. It also ensured that the Barnes Foundation would have the finest collection of Soutines in America.

Although Soutine was the only real discovery of Barnes', purchases by the doctor also enhanced the reputations of Modigliani, Jacques Lipchitz, Giorgio de Chirico and Jules Pascin. By 1923, Guillaume, writing in an art dealer's magazine, hailed Barnes as "the Medici of the New World." Yet, Barnes would soon develop his reputation in the American art world for vitriol and bluster. His biographer, Howard Greenfeld, describes him in *The Devil and Dr. Barnes* as "stubborn, strong-willed, doggedly opinionated, and totally unwilling to compromise." Barnes also harbored a bitter grudge against Philadelphia society for the way it belittled him for unpolished manners and humdrum origins.

At first, Barnes tried to court those who dominated Philadelphia art tastes. In 1923 he loaned 75 of his paintings and sculptures–including works by Lipchitz, Soutine, Modigliani, Matisse, Picasso and Utrillo–to the Pennsylvania Academy of Fine Arts for an exhibition. But he was not prepared for the scorn and contempt that dismissed them. "It is debased art," wrote Francis Z. Ziegler in the *Philadelphia Record*. "It is hard to see why the Academy should sponsor this sort of trash."

All's fair in love, war and collecting

In 1931 the Philadelphia Museum of Art asked Barnes to help it obtain a Matisse painting that was part of the triptych *The Three Sisters*, in which Matisse had posed his favorite model, Laurette, with two other young women in 1917. Barnes, who had two of the panels already, agreed to take an option on the third while the museum tried to raise the $15,000 purchase price. When the museum failed to come up with the money in time to meet the dealer's deadline, Barnes bought the painting himself. A day later, the museum did put together the funds, but Barnes would not give up his purchase. "You're going to let us have it?" asked a museum official hopefully, over the phone. "The hell I will," replied Barnes. "It is a peach of a picture." Since the museum had failed to raise the money, Barnes apparently felt no obligation to turn it over to them. A bitter Fiske Kimball, director of the museum, wrote to a friend, "We always knew that Barnes was a son of a bitch, and now we can prove it."

And yet, although Barnes had a legion of enemies, he also developed warm friendships that belied his reputation. Both the actor Charles Laughton and the philosopher John Dewey, for example, were friends for decades. "Dewey's goodness was so genuine, constant, and sustained," wrote Professor Sidney Hook in an obituary, "it was almost with relief that I discovered a shortcoming in him. That was his indulgent friendship for Albert C. Barnes."

Among Barnes' lifelong friends was James Johnson Sweeney. As a young man, Sweeney, later a curator for the Museum of Modern Art in New York, met Barnes aboard an ocean liner en route to France in 1925. In a lecture in 1971, Sweeney described Barnes as "an enigmatic character of whom I have heard very few kind words said . . . yet a man who to me . . . was kindness, generosity, and humanity itself." Their friendship had only one lapse. When Sweeney asked for the loan of a few pieces for a MOMA exhibition, Barnes replied by letter, "Dear Sweeney, you're just like all museum people, dishonest and a hypocrite."

In 1922, Barnes created the Barnes Foundation and

In his *Acrobat and Young Harlequin* (1905), Picasso captured the air of ennui at Montmartre fairgrounds.

commissioned Paul Philippe Cret, a French professor of architecture at the University of Pennsylvania, to design a home for the collection in the Philadelphia suburb of Merion. Cret's French limestone building in Renaissance style, its grounds graced by an arboretum that was lovingly overseen by Laura Barnes, is more like a mansion than a museum.

When the Barnes Foundation opened its doors in 1925, it was one of the first museums of modern art in America. It had or would soon have more Cézannes than all the museums of Paris, the largest collection of Matisses in the world and of course the largest collection of Renoirs ("I am convinced that I cannot get too many Renoirs," Barnes wrote Leo Stein in 1913).

He brought in heavyweights Dewey and Russell

Yet, calling the Barnes Foundation and its collection a museum misses the point. Barnes conceived of his creation not as a museum but as an educational institution. John Dewey, the father of American progressive education, served as the foundation's first director of education. When the British philosopher Bertrand Russell (see page 128) was prevented from teaching at the College of the City of New York in 1940 because of a lawsuit citing his writings on sex and marriage, Barnes appointed him to the foundation faculty instead (though he and Russell soon quarreled).

The Barnes Foundation set up an elaborate series of courses–which still exist–with lecturers using the paintings to illustrate the theories. Attended by 200 students a year, the courses demanded as much time as any university class. The galleries opened to a limited number of nonstudents, but they had to receive permission from Barnes or another member of the board first. That, as Woollcott, Eliot, Panofsky and the others discovered, was not always easy.

Barnes was so cantankerous a character, and his display of paintings so eccentric, that it is easy to assume that his theories of art must have been goofy. But in fact, the theories–sensible and carefully thought out–were influenced by Dewey's philosophy of education. Dewey, in turn, was deeply influenced by Barnes' ideas about art. The two dedicated their books on art to each other.

Albert Barnes believed that, although a painting might seem to tell a story or underline a moral value, its greatness came only from the way in which the artist "used his materials to produce a work of plastic art." A great artist always tried to embody an experience in a painting. To appreciate the painting, Barnes said, "we must reconstruct his experience, so far as we are able, in ourselves." A student could reconstruct the experience by trying to understand how the painter's use of line, light, color and space created the form of the painting. Although Barnes did have a sense of the way paintings fit into the spirit of

Three riveting women: (above) Modigliani's voluptuous *Reclining Nude from the Back*; (below, at left) Toulouse-Lautrec's image of 1880s prostitution, *"A Montrouge"–Rosa la Rouge*; and Picasso's *Woman with a Cigarette.*

an era, his theories made it clear that the form of a painting overshadowed the life of its painter and the history of the times.

The theories may have made a good deal of sense, but Barnes and his staff turned them into a caricature by adhering to them in an obsessive way. The collection's display, which has not changed over the decades, reflected this obsession. Barnes did not group his paintings by painter or nation or era or school of art, but in crowded arrangements designed to help students understand his theories. Walls had unifying themes like decoration or power or daintiness or drama or simplicity or color or space. One wall displayed a feast of Renoirs just to show how monotonous the usual museum wall can be. Another room featured nothing but American paintings simply to demonstrate that they had little in common. Barnes' longtime assistant, coauthor and traveling companion, Violette de Mazia, described one wall as special because "painting after painting provides a surprise."

Myriad metalwork completed the ensembles

On top of this, Barnes assembled the paintings throughout in what he called "wall-ensembles," as if the grouping on a wall were an artistic composition of its own. Paintings joined to form a pyramid or a canopy or a steeple or some other geometric or architectural form. Some walls were arranged in symmetry, others as if pulled by centrifugal force. Myriad metalwork–keys, locks, scissors, joints and latches–decorated the walls to complete these arrangements.

In trying to fathom the meaning of all this, visitors could not depend on the titles of the paintings to help them. The Barnes collection did not display any, for fear that the title might detract from the true significance of a painting. Barnes wanted his students to learn that a painting is a composition of paint and not the object described in the title.

Without a key, without taking the courses or reading the works of Barnes and de Mazia, most visitors looked puzzled standing before what seemed like eccentric and overcrowded hangings. And yet the experience was usually exhilarating anyway, powered by the magnificence of the paintings. It is hard to believe that any room in any museum in the world had as much greatness and variety as the main gallery, with the largest version of Paul Cézanne's *The Card Players*, the wondrous *Models* by Georges Seurat, Henri Matisse's *Merion Dance Mural* (painted on commission for Barnes) and 55 other paintings. Moreover, visitors had the thrill of discovery. Since the paintings were little known and, until recently, never reproduced in color, few visitors knew which works had been stamped by critics for greatness. A painting could be embraced as a private and personal discovery.

In 1950 Barnes made a momentous decision–to lay

Entranced by Soutine's works while in Paris, Barnes bought *The Little Pastry Cook* and 51 other paintings.

the future of the foundation after his death in the hands of Lincoln University. By then, he had ruled out all Philadelphia universities and art institutions. The decision to name Lincoln surprised outsiders, but for only one reason–Lincoln was a college for African-Americans.

Some thought the choice amounted to little more than a final attempt to thumb his nose at the Establishment. Yet Barnes had long been interested in black causes. He often claimed that he had been fascinated by black culture ever since his mother took him to a religious camp meeting when he was 8 years old. He was a major donor to the National Urban League and contributed articles to its magazine. Few collectors had finer African pieces. His choice of Lincoln was not foolish. Located 45 miles southeast of Philadelphia in the mushroom country near the Maryland border, Lincoln was one of the finest liberal arts colleges in America. Its graduates included the poet Langston Hughes, the future African political leaders Kwame Nkrumah of Ghana and Nnamdi Azikiwe of Nigeria, and the future Associate Justice of the Supreme Court Thurgood Marshall.

When Barnes and Lincoln president Horace Mann Bond, one of the country's best-known black educators, first met at the funeral of a prominent Lincoln graduate, the collector said he hoped that Bond would not be "long-winded like most Negro preachers." Bond replied testily that he was not a Negro preacher and would speak for exactly three minutes. When Bond did as promised, Barnes invited him to see the paintings, and a friendship grew. In 1950 Barnes amended the bylaws of the foundation to provide that Lincoln University would have the power after his death to nominate new members of the board as the old members died or retired. (There was a single exception: one of the five places on the board would be permanently reserved for a representative of the Mellon Bank.)

Barnes died in an automobile accident in 1951. The board, made up mainly of loyal disciples, including his widow and his associate de Mazia, managed to maintain his concept of the foundation with little change for almost four decades. Court suits by the *Philadelphia Inquirer* and the State of Pennsylvania did pressure the board into allowing reasonable public entry into the galleries in 1961. If the public could not enter freely, a judge warned the board, the foundation would lose its classification as a public institution exempt from taxes. The board agreed to let in 200 visitors each Friday, Saturday and Sunday, half by appointment, the rest on a first-come, first-served basis. But the collection still functioned mainly as a backdrop to the educational courses.

In 1988 trustees selected by Lincoln finally took control of the board and, in 1990, elected fellow trustee Richard H. Glanton, then a 43-year-old Philadelphia attorney and Lincoln University counsel, as president of the Barnes Foundation. The new era had begun, but it did not begin smoothly.

As an African-American growing up in rural Georgia, Glanton had roots even poorer than Barnes', and his rise was just as spectacular. A graduate of the University of Virginia law school, Glanton, a rare black Republican, had become deputy counsel during Richard Thornburgh's first term as Governor of Pennsylvania. Articulate, quick-witted and headstrong, he was widely regarded in Philadelphia as a young lawyer with political ambitions who might run for mayor someday.

The rocky road to modernization

From the start, it was clear that Glanton intended to bring the Barnes Foundation into the mainstream of American institutional life. He told the *Los Angeles Times* that he planned to follow the rules filed by Barnes in court but added, "We're not talking about Moses coming down with his tablets. Everything changes. The only thing that is constant is change."

Calling Barnes' antipathy to color photographs a myth, he revoked the old board's ban against them and signed a contract with Alfred A. Knopf to publish two books with color illustrations on the collection (one is

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the catalog for the National Gallery exhibition). This drew a lawsuit from disciples of Barnes and de Mazia claiming that Samuel I. Newhouse jr., chairman of the corporation that owns Knopf, influenced Glanton through a Newhouse Foundation donation of $2 million to Lincoln University. In a countersuit, Glanton accused the late de Mazia of having taken 30 paintings from the Barnes and of selling them to fund a trust in her own name.

Then Glanton shocked the art establishment. Citing the need for $12 million to $18 million to renovate the museum and its surrounding and nearby properties, he asked the court for permission to defy Barnes' strictures by selling up to 15 paintings to raise $15 million. Although Barnes had left the foundation an endowment of $9.8 million, he had stipulated it could be invested only in government and railroad bonds. The endowment never grew but shrank slightly in the four decades. Glanton's plan to sell paintings provoked an outcry from museum directors; it is standard American museum practice never to sell paintings to pay for upkeep. He withdrew his request three months later.

Finally, after meeting with J. Carter Brown, then director of the National Gallery of Art, Glanton asked the court for permission to loan 80 paintings for a world tour during the renovation of the Barnes buildings. He said he anticipated earnings of at least $7 million from the tour. Although critics pointed out that Barnes had expressly forbidden the loan of any of his paintings, the judge ruled that a loan of paintings for one time only was justified in this case.

The installation at the National Gallery of Art does not attempt to duplicate the eccentric hangings of the Barnes Foundation (although a mural photograph will show what a typical Barnes wall looks like). The paintings, with their titles displayed, are grouped at the National Gallery by artist and chronology, starting with Edouard Manet and Claude Monet and ending with Henri Matisse. The hand of Barnes is reflected only in the magnificence of the paintings.

The National Gallery had no trouble deciding which of the paintings it wanted to include. "It was very easy for everyone to choose the 80 paintings in the exhibition," says Elizabeth Streicher, the coordinating curator of the show. "So many of these works are icons in the history of art." But these icons, which will surely dazzle and surprise most viewers, were more or less hidden from the public for 70 years.

Matisse's *Le bonheur de vivre*, for example, has long been more talked about than seen. With great exuberance of color, Matisse painted a joyful pastoral scene that seemed the culmination of the grand tradition of Old Masters depicting myth and nature. His figures, both languid and ecstatic, playful and erotic, dance and make love in a setting of bright innocence. Matisse, sure

Toward the end of his life, Renoir explored themes of earlier works, as in *Bathers* (c. 1918). Confined to a wheelchair, he painted with brushes that were strapped to his arthritic hands.

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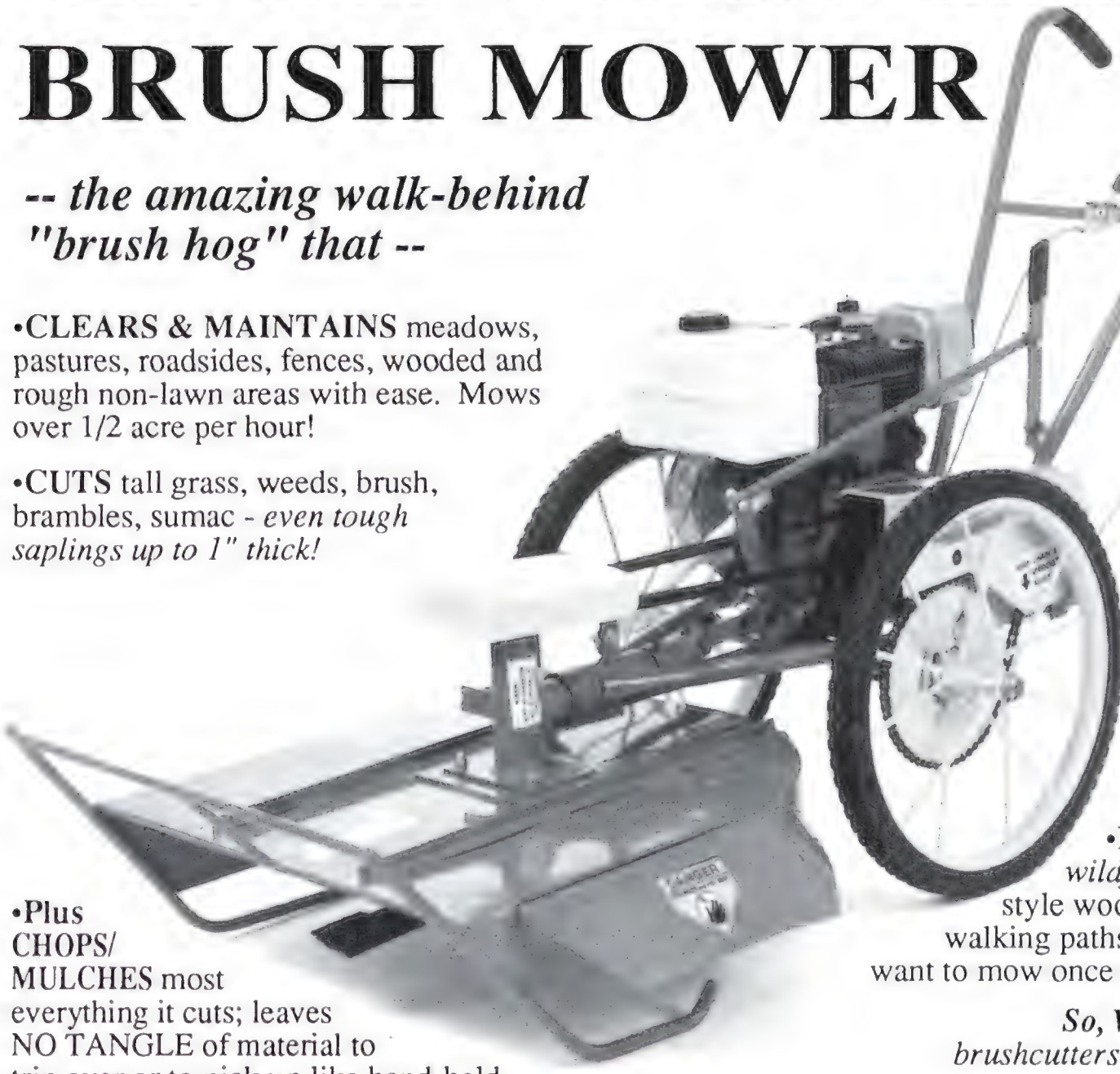

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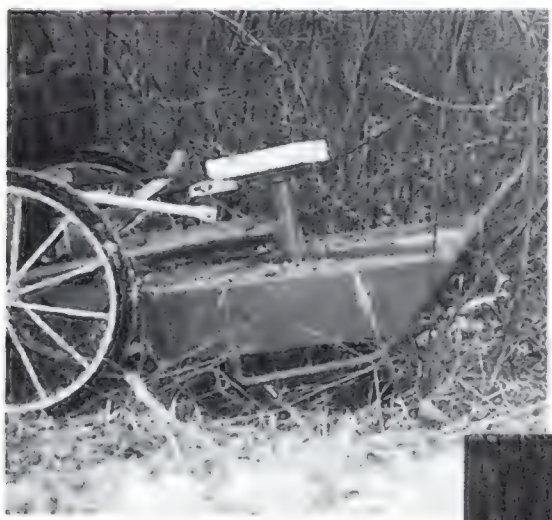

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Richard Glanton is president of the Barnes Foundation, which is under the stewardship of Lincoln University.

of its importance, sent it off to the Salon des Indépendants in 1906. Leo Stein, the brother of Gertrude Stein, puzzled over the painting for more than a week before buying it and pronouncing it "the most important painting done in our time." The work troubled the young Picasso, who visited the Stein apartment often, for it was better than anything he had ever done. *Le bonheur de vivre*, as the Picasso biographer John Richardson puts it, "fired Picasso, once and for all, to go one better." In 1907 Picasso finished his harsh, Cubist group portrait of Barcelona prostitutes, *Les demoiselles d'Avignon*—regarded by many critics as the painting that set what we know as modern art on its course. While the Picasso masterpiece has for decades enthralled hundreds of thousands of visitors to the Museum of Modern Art, the Matisse masterpiece that inspired it has remained relatively obscure in the Barnes collection.

Matisse's *Merion Dance Mural* seems far more familiar, partly because rings of undulating, graceful dancers are a common Matisse motif, partly because a near duplicate of the mural hangs in Paris at the Musée d'Art Moderne. On a visit to the United States in 1930, the 61-year-old Matisse asked to visit the Barnes Foundation. He had never seen its grand collection of his own paintings before. Barnes, who knew the artist from his journeys to Paris, met Matisse at the door and soon made him a surprising offer. Would he decorate the wall of the two-story main gallery of the Cret building with a mural? After some hesitation, Matisse accepted the $30,000 commission and rented a garage in Nice as a studio.

Matisse painted three sections, each more than 11 feet high and 14 feet wide, to fit on lunettes over the massive doors and windows of the main gallery. The work seems almost simple: eight stone-gray human figures in different sensuous movements dance against a background of slabs in pink, blue and black.

After nearly a year of labor, Matisse discovered that he was somehow using the wrong measurements for the lunettes. He had to start again. This second mural was completed in 1933, and Matisse showed up at the Barnes Foundation in May to supervise the installation. Barnes pronounced the mural "like the rose window of a cathedral." To Matisse, it was "like a song that mounts to the vaulted roof." The painter later completed the first mural, which now hangs in the Paris museum and is therefore known as the *Paris Dance Mural*. A third version, unfinished and rolled up, was found in a box in 1992 after the death of his son, the art dealer Pierre Matisse.

Other paintings in the exhibition are sure to take their rightful places in the lexicon of modern art, including, to name just a few, Seurat's *Models*, his attempt to prove that Pointillism could depict the human body in a realistic setting; Cézanne's *The Card Players*, a familiar Cézanne theme but at six feet by four feet, the largest and most complex of the five versions that he painted; Picasso's serene and idealized *Acrobat and Young Harlequin*, which he evidently sent to the Venice Biennale in 1905 only to have it rejected for entry; Modigliani's *Reclining Nude from the Back*, one of the voluptuous 1917 nudes that the Paris police seized in the artist's first one-man show; Soutine's *The Little Pastry Cook*, an extravagantly colored painting that was among the 52 works that Barnes bought from the unknown artist in 1922; and, of course, Matisse's wonderful triptych *The Three Sisters*.

There is a wistful sadness in all this. As the new board pulls the Barnes Foundation into modernity and the collection takes on a good deal of the openness of a public museum, as people throughout the world see this exhibition and color illustrations highlight the paintings in textbooks, something mysterious will be lost. Few visitors will ever enter the halls of the Barnes Foundation again in an aura of innocence to make their own personal discoveries of great paintings hidden in obscurity. Most of the works will have become too familiar. But that is the price that must be paid as the paintings collected by the irascible yet prescient Dr. Barnes take their rightful place in the history of modern art.

In 1876 at Argenteuil, a very happy Monet painted himself silhouetted in his boat studio on the Seine.

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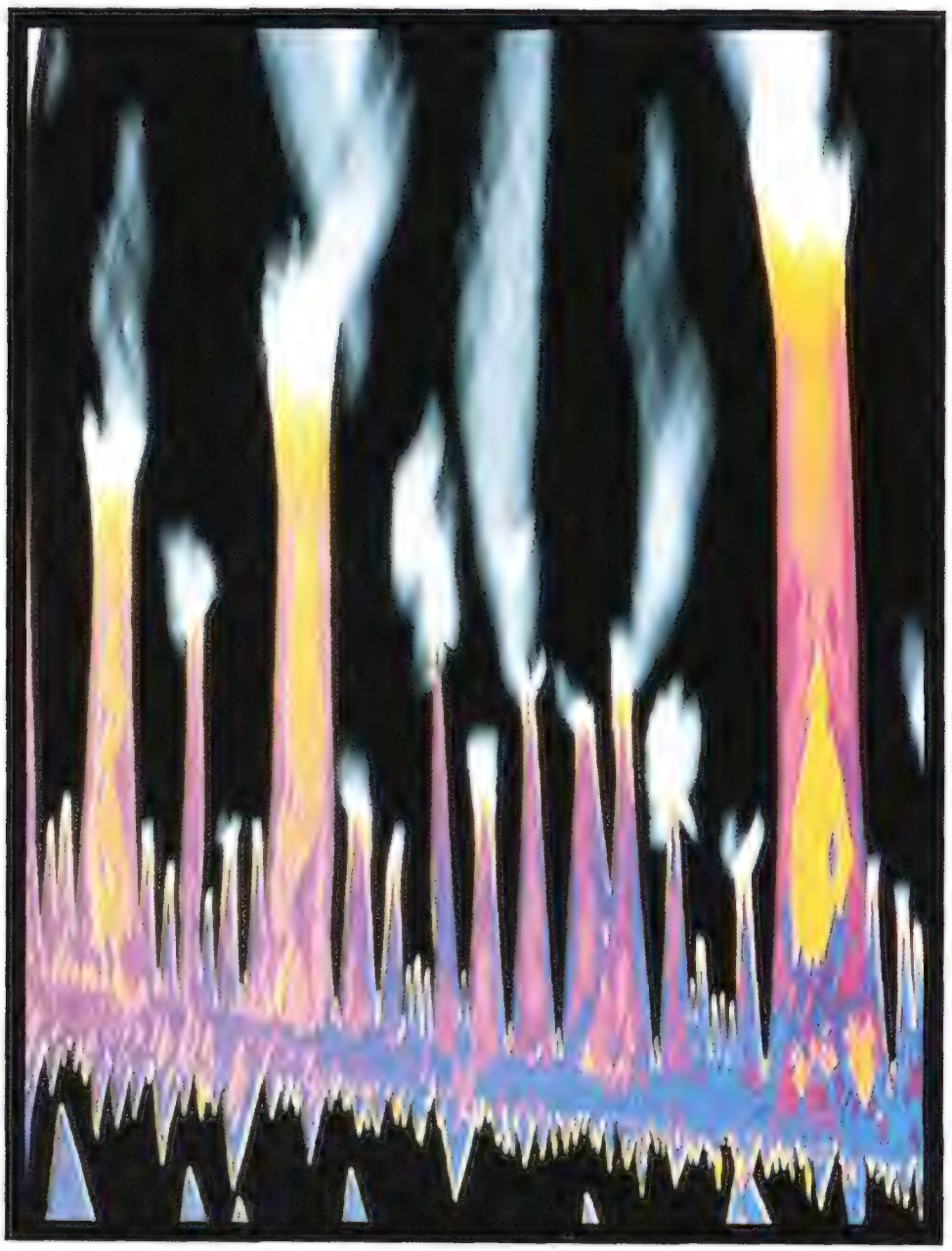

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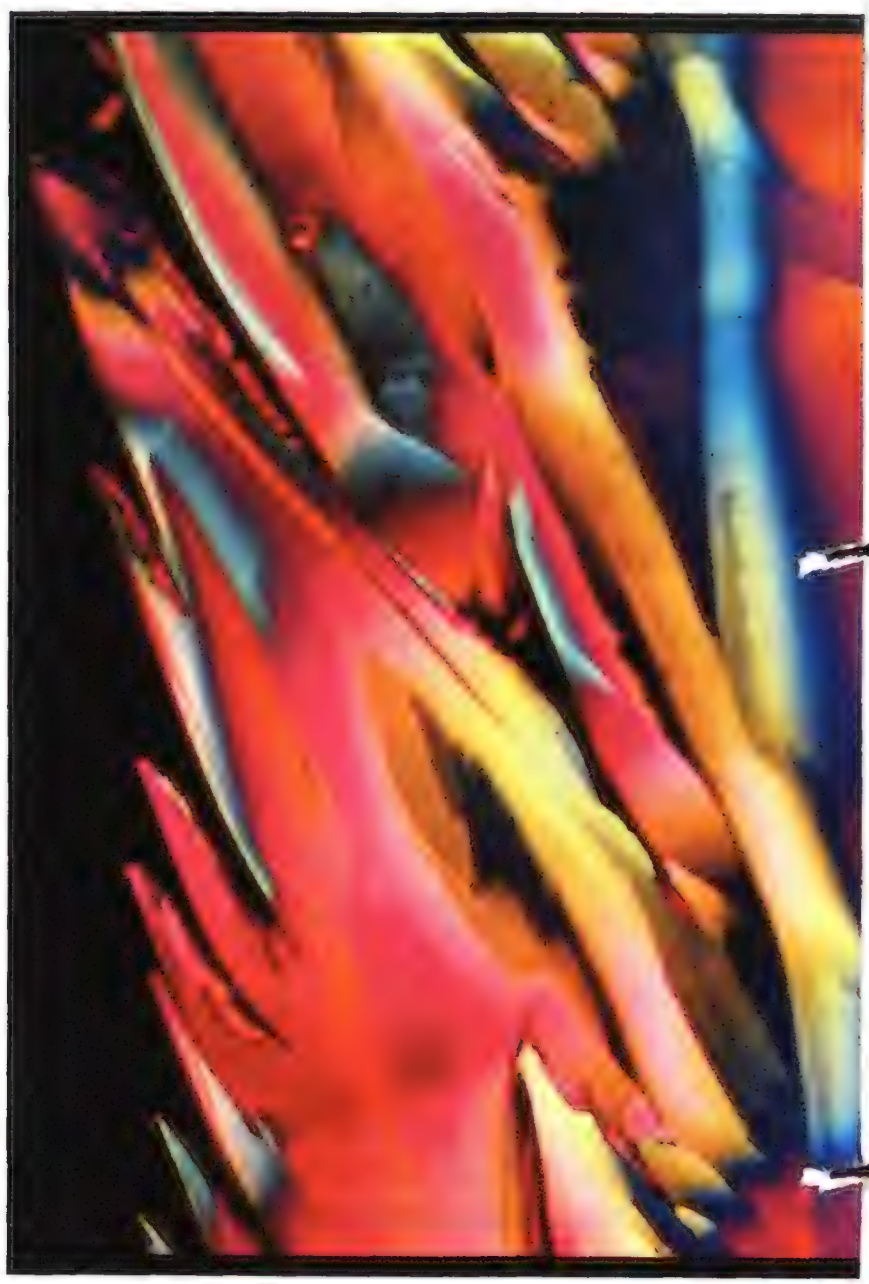


ASCORBIC ACID (VITAMIN C)

By David M. Schwartz

Revealing the hidden, ethereal beauty of commonplace crystals

Seen through Dennis Kunkel's microscope, ordinary compounds from caffeine to insulin shimmer with the brio of abstract art

In 1683, a Dutch surveyor named Antonie van Leeuwenhoek pronounced in a letter to the Royal Society of London that there were more creatures living inside his mouth than people living in the Netherlands, and he had produced an optical instrument to prove it. Since then, voyeuristic scientists have used van Leeuwenhoek's version of the microscope and its technological descendants to glimpse an otherwise invisible domain. By attaching cameras to their microscopes, they are able to produce photographs that bridge the cultural divide between science and art.

A man of both science and art, Dennis Kunkel has two résumés: one for the PhD-carrying microscopist in the Department of Neurological Surgery at the University of Washington, and one for the prizewinning contributor (and curator) of museum-quality photomicrography exhibits. His work appears in scientific journals and art galleries, biotech firm catalogs and juried craft shows.

Kunkel got his first microscope for Christmas at age 10. In Marshalltown, Iowa, where he grew up, his family happened to live a short distance from a pond. Kunkel spent his after-school hours collecting water from that handy source and observing its microscopic denizens.

Later, he bought a used Leitz and outfitted it with a large-format camera. Exploring its possibilities, he discovered esthetic sensibilities he never knew he had. "I began to think about the artistic potential of useful scientific images," he says, "from bacterial spores to plants with iridescent colors to neurons that form a circuit and allow us to develop as sentient beings."

Some of Dennis Kunkel's most striking images depict the crystals of biologically active compounds viewed under polarized light. Starting with a visually uninteresting powder, he melts or dissolves the compound and lets it recrystallize on a glass slide or clear plastic plate. Placing a flat glass surface on top limits vertical crystalline growth. With luck and a laborious search, Kunkel locates an area of the crystal lattice thin enough to transmit light and reveal an orderly growth pattern. Each compound's distinctive optical properties refract the light into a characteristic palette.

Caffeine to cholesterol, testosterone to adrenaline, citric acid to progesterone: no hormone, vitamin, neurotransmitter, nutrient or alkaloid is safe from exposure as abstract art. The phantasmagoric shapes and vibrant colors are as stunning as they are unexpected. Crystals of adrenaline become a jagged vista of extraterrestrial peaks. Ascorbic acid (vitamin C) creates frosty fernlike patterns (Kunkel calls the print *Ice Garden*), while citric acid sends up softly rounded arms suggestive of living coral. The hues of insulin shimmer like an oil slick. And vitamin E mimics the energy of a Jackson Pollock canvas.

Caffeine is surprisingly delicate, even frilly, but the artist says that the sharp tips remind him of pins and needles–just what you might predict from a drug that puts you on edge. "Some images seem to mimic the compound's effect on the body," he suggests. Without claiming any scientific significance, he notes that testosterone, estradiol (estrogen), adrenaline and other compounds that produce a dramatic physiological response often seem to have jagged or pointy crystals that really *look* like they mean business. "Adrenaline produces a cardiovascular response intended to give you a rush, and when I first saw it under the microscope–wow, I got a rush, too!" Most ominous of all, perhaps, is nicotine: its crystals remind him of smokestacks.

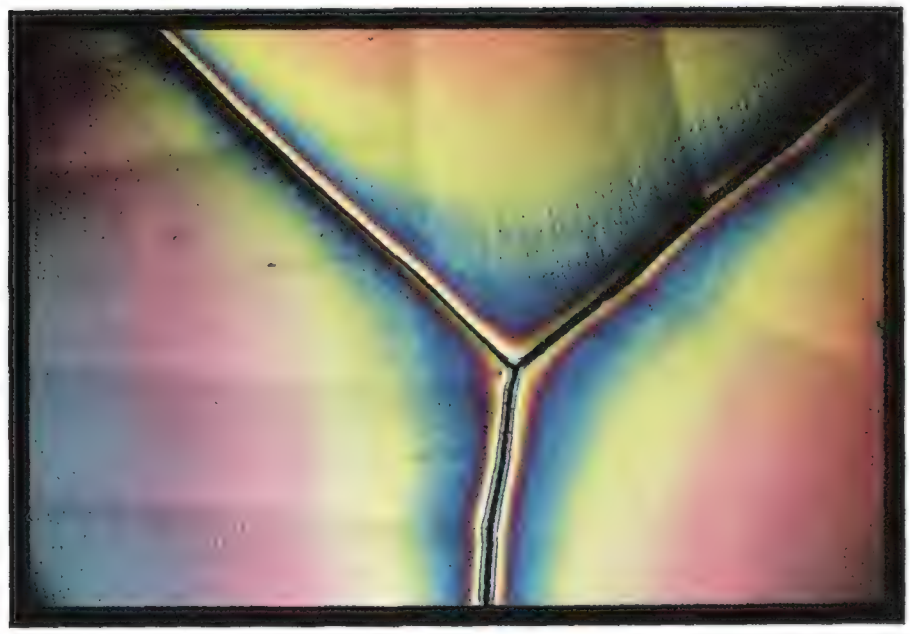
Crystal art, from T-shirts to opera

In micrography, as in any science or art, the unplanned and the seemingly undesirable can give rise to provocative results: a tiny imperfection on the microscope slide incites adrenaline to sprout a spectacular starburst (opposite). Its portrait earned Kunkel a first prize in the Polaroid Corporation's 1992 International Instant Photomicrography Competition.

Nowadays, forms as dramatic as these cannot escape metamorphosis into wearable art: some of Dennis Kunkel's crystal photographs have appeared on T-shirts. At the other end of the cultural spectrum, at least 20 of them will be projected onto a scrim during the staging of a new opera by composer Frank Lewin. The opera, which will premiere in New Haven next November, is called *Burning Bright*, a title that captures the searing effect of these vivid crystal images.

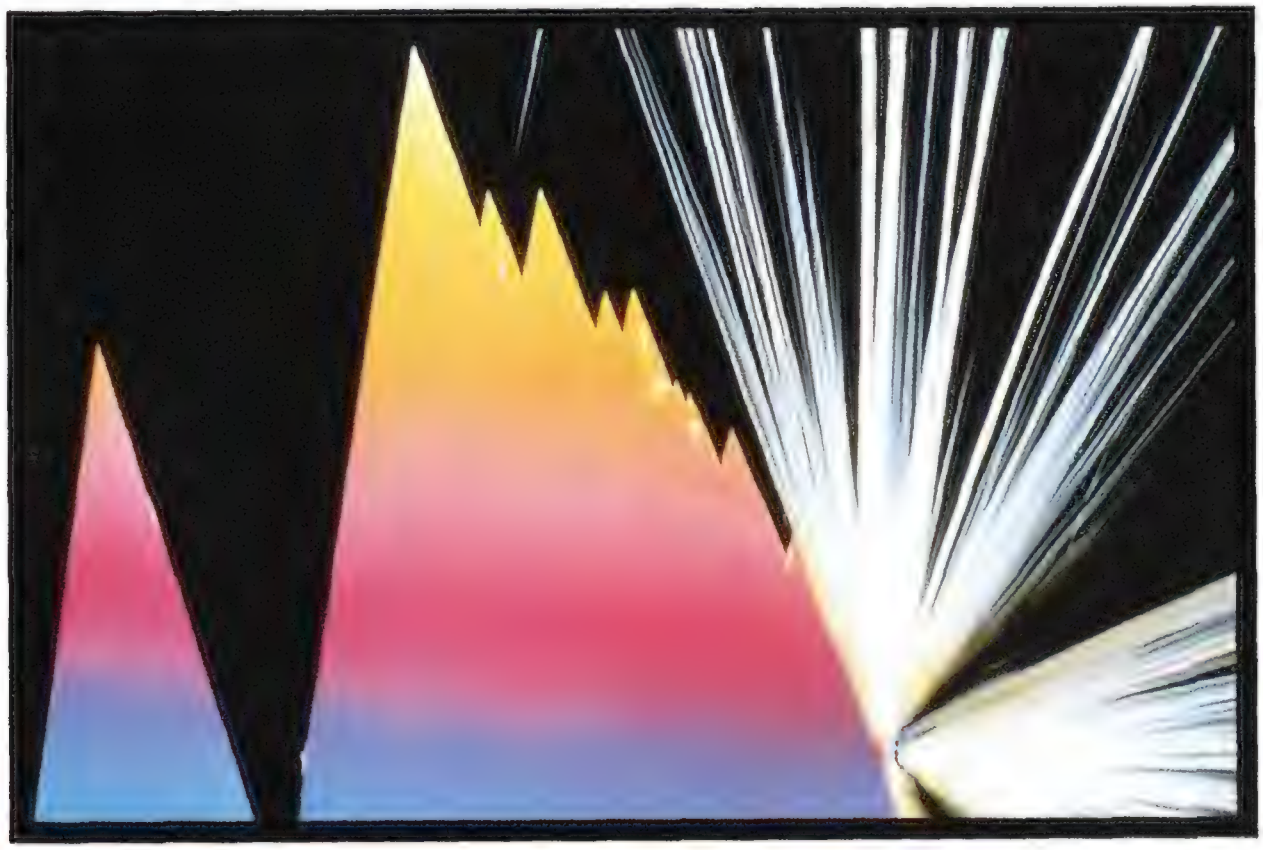
ESTRADIOL (ESTROGEN)

TESTOSTERONE AND ADRENALINE (MIXTURE)



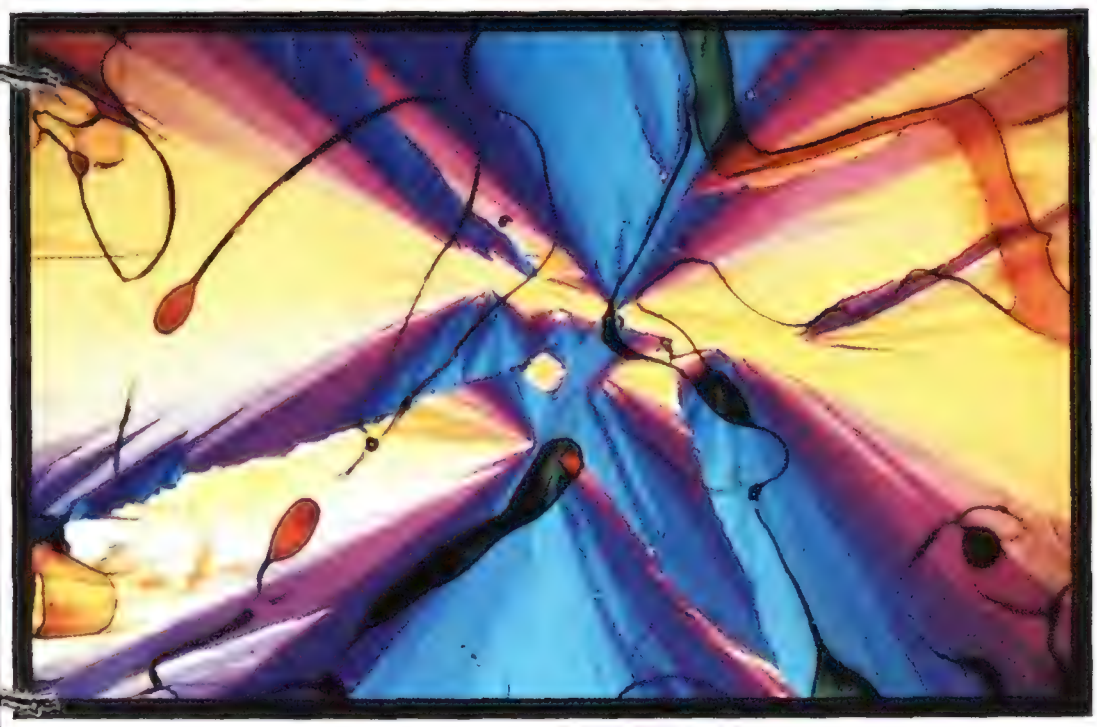
Citric acid

Caffeine

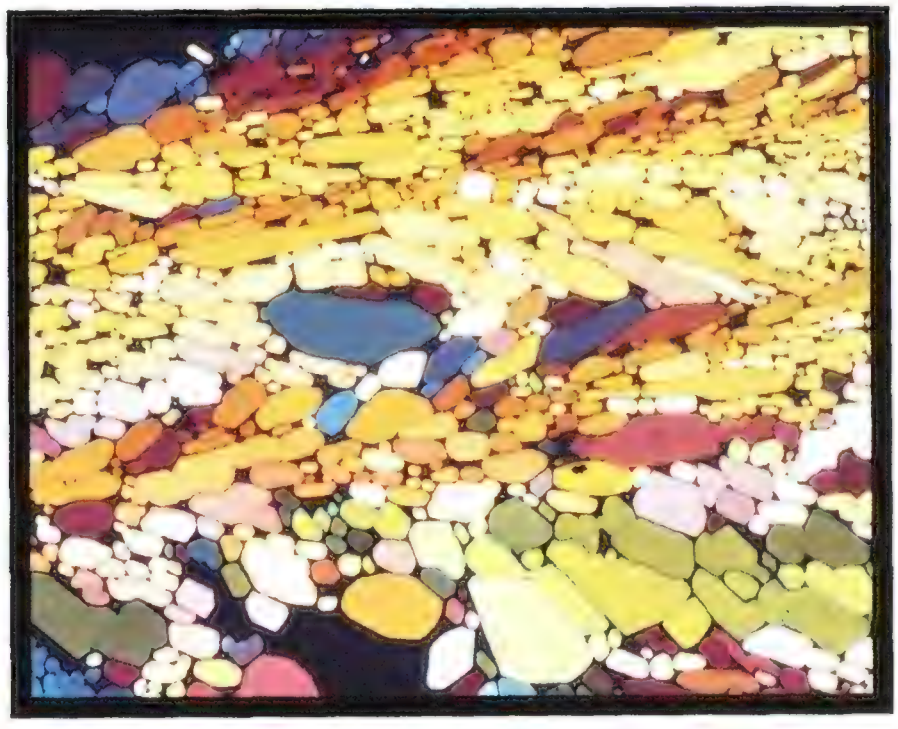


Adrenaline

Insulin



Vitamin E



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By Dora Jane Hamblin

Once maligned, Celts are now touted as the first Europeans

Barbarians to Greece and Rome, this race of wanderers had plenty of gall, but left us an elegant and intricate artistic legacy

Were they scourges or superachievers? Barbarians or benefactors? They attacked and harassed their enemies the length and breadth of Europe from the British Isles to Asia Minor. But their craftsmen also developed innovative tools in iron and steel, and implements that were the ancestors of many we use today. Their warriors appeared roughly and scarily clad and coiffed, and their settlements were relatively primitive compared with those of the more advanced civilizations of the ancient world. But their superb artistic achievements in glass and bronze, silver and gold now enhance museums throughout the West. Judging by classical Greek and Roman literary sources, the consensus rested emphatically on "scourge" and "barbarian." Yet, as more and more of their history and achievements have come to light, the weight of evidence indicates that the Celts were truly "the first Europeans."

It was Rome that those first Europeans had the effrontery to attack and capture in 390 B.C. However, their incursion into the sacred heart of Rome, the Campidoglio, was frustrated in the end by that flock of hissing and honking geese who awakened dozing defenders when the Gauls—as the Romans called them—crept up on padded feet. (Some historically minded Italians still defend their property with geese instead of watchdogs.) But retalia-

Arrayed for battle, bronze Celtic warrior or deity wears protective tunic, belt, carries traditional shield.

Myth and ritual were vital to Celtic religion. On a plate from Gundestrup caldron dated c. 100 B.C., antlered god Cernunnos, holding ram-headed snake and a torque, is surrounded by a panoply of remarkable beasts.

tion had to wait three and a half centuries, until Julius Caesar began his conquest of Gaul–remember, all long-suffering Latin students, that *Gallia est omnis divisa in partes tres.* He would have divided it into more parts if he could, and so the Greeks would have done after another horde of Celts attacked the sacred shrine at Delphi, about a century after their assault on Rome.

They got their first recorded comeuppance in a Greek colony in what is now Turkey, when King Attalus I of Pergamum stood and fought. And won. To commemorate the victory he commissioned a series of sculptures including one the West knows well in a Roman copy, *The Dying Gaul.* Familiar as a symbol of defeat, the fallen figure still has enormous dignity. One Gaul gone, yes, but his compatriots had swept like a tide across Europe. An expansionist lot who were after land and riches, and only secondarily conquest, their trail has been traced from the Iberian Peninsula to the Baltic to Britain, and from the Atlantic eastward into Poland and Hungary, spilling into Greece and over to central Turkey. This helps to account for their myriad names–"Keltoi" or "Galatians" to the Greeks, "Gauls" to the Romans–and explains why they were bad-mouthed by the most cultured and sophisticated societies of their time. Confusion persists even among those who call them "Celts": English-speaking people pronounce it KELTS, the French SELTS, the Italians CHELTS.

The last remnants of Celtic language and lore exist in nooks and crannies where the Romans didn't get at them–Ireland, Scotland, Wales, Brittany, and Boston, of course, where fans root for the SELTICS–and with a dedicated group of scholars worldwide who are devoted to unraveling Celtic history and delving into its myth and magic.

So who were they? They were never an empire, never even a nation, just a bunch of tribes that spilled out of central Europe–what is now eastern France, Switzerland, Bohemia, Austria, southern Germany. Their enemies saw them as big, tall, hairy types who loved wine and war, seemed happy and hardy enough to sleep on the ground, and scared the daylights out of anybody not that tough. They emerged around the middle of the first millennium B.C., reached their apogee about the third century B.C., and left a legacy that scholars now say included such Western icons as King Arthur and the Round Table, the great chalk horses of Britain, Gauloise cigarettes, and artistry in gold and bronze, even iron.

Yes, iron. They didn't invent it, but they became highly proficient in the use of it. They were, in the words of American archaeologist Brad Bartel, "the most important and wide-ranging of all European Iron Age people." The Iron Age was theirs, and with it they fashioned a variety of elaborate agricultural tools, carriage wheels, weapons of war. And art. For a martial people they devoted amazing skill and energy to it.

Wild and woolly they may have been in some regards. Archaeologists have found evidence of both animal and human sacrifice, and Celtic warriors were known to cut off the heads of enemies and dangle them from their horses' necks or from roof beams. Quite apart from their notable head and body hair, they tended to favor distinct-

Famous sculpture *The Dying Gaul* was commissioned by Attalus I to mark triumph over Celts at Pergamum, 230 B.C.

ly luxuriant mustaches. And they learned to smear their abundant locks with lime and water, then sweep them up and back into stiff tufts that made them look like some savage Pan or satyr. The motive was to terrify the enemy, and on the record it was an unqualified success.

Despite all this, and their occasional employment as mercenaries by nearly everyone from Carthaginians to Etruscans, the Celts seem to have been essentially an agricultural people, content to settle down wherever they ended up, planting grain, adapting to soil and climate. The most dramatic evidence that they weren't total barbarians is their art. They were masters of metals, turning swords and helmets into exquisite works. They fashioned horn into metal-embossed drinking vessels, bronze into huge, decorative caldrons for feast and ritual. Their personal adornment included intricate *fibulae*, ornamental garment pins, often adroitly crafted into plant and animal forms. Women wore rings, and wrist and ankle bracelets, and men sometimes sported heavy worked necklaces called torques, of bronze, silver or gold, which their Mediterranean enemies portrayed them as wearing into battle.

The Celtic artistic sense was quite different from the realism of Rome, the idealism of Greece. The Celts combined human and animal figures into fey anthropomorphic shapes; they united plants and leaves with magic symbols and gods. Rather than copying nature and life, they interpreted it. In the opinion of Italian archaeologist Sabatino Moscati, principal organizer of a blockbuster exhibition of Celtic martial and artistic prowess that was held in Venice's Palazzo Grassi in 1991, they were "the world's first abstractionists, the first true moderns."

Because they were the most far-ranging of all European Iron Age peoples, traces of their handiwork have been found all over Europe. They developed scythes for harvesting hay and the iron plowshare, invented the rotary flour mill and a sort of wheeled harvesting machine, iron rims for chariot wheels and, upon funerary evidence, equality for women.

Funerary evidence, in fact, has been crucial to recognition and assessment of Celts, as it has also been for their artistic soul mates the Etruscans. Celts lived in wooden houses whose interior walls were often plastered, and worshiped myriad gods mostly in open glades.

A key find in shedding light on the Celts was the discovery a century and a quarter ago of an immense cemetery near the town of Hallstatt in upper Austria. Diggers were astounded by the richness of the tombs, the artistry of the objects. The Celts, who measured days from dusk to dusk, believed in neither heaven nor hell. They were inclined, it seems, to take their most prized possessions

Having lived in various parts of Celt country over the years, the author, now residing in Italy, has a special affinity for those once-beleaguered people.

This marble copy of the bronze original still conveys deep sympathy and admiration for the vanquished foe.

with them into the next transition in experience, and so filled their tombs with everything they might need: jewelry, clothing, beds, weapons, carts for transport, miniature boats, just in case. The discovery became known to archaeologists as the "Hallstatt culture," a name that is synonymous with a period of Central European history from the eighth to fifth centuries B.C.–the early Iron Age. A few years after the Hallstatt discovery, a drought in Switzerland that dried up the edges of Lake Neuchâtel exposed a site containing a cache of iron weapons and jewelry. This became, in the shorthand of scholars, the "La Tène culture," and both cultures eventually were identified as Celtic. The clue was the superb artistry of the objects, and their astonishing geographic dispersal. La Tène material has turned up from Italy, the British Isles, Spain and France to the former Czechoslovakia, Hungary, Bulgaria and Ukraine. Nobody but the Celts, the first Europeans, had been all of those places.

And then, after all the wild-eyed classical reports of flaxen-haired females who brandished swords and fought beside their men, excavators found, only in 1953, a final testament to the importance of Celtic women: the burial of a princess with jewelry, a carriage and a bronze krater more than five feet tall. Known now as the Vix tomb (SMITHSONIAN, March 1986), it certified not only the presence of a princess, but also the scope of trade one would expect of the first Europeans: items from Etruria, Greece and elsewhere in the Mediterranean world. Her four-wheeled burial wagon was decorated with bronze panels resembling a male burial bed found in Germany whose exquisitely formed caryatids echoed those on the Athenian acropolis.

A man could not marry without property

Scholars now believe that social and economic conditions led the Celtic tribes to become an expansionist people, with landless young men heading out to acquire their own turf. (In order to marry, it was necessary to have property.) There is evidence that males had more than one wife, but that eventually one prevailed and the others became servants. Evidence at burial sites indicates that Celtic women, like Etruscan but unlike Greek and Roman, appear to have enjoyed near-equal status with men. And it seems that they sometimes actually did go into combat beside their men.

Women and children were useful members of Celtic society, whose diverse economy was based on cereal crops such as wheat, barley and oats, according to Peter Wells, a professor of anthropology at the University of Minnesota. They raised garden crops–peas, lentils and beans–and domestic animals, especially cattle and pigs, for food; cattle were also used as draft animals and milk suppliers. They never adapted the Mediterranean burro, but they doted on chickens and spread their cultivation through Central, Western and much of Eastern Europe. They had dogs, some of which they ate. They never went in for what the Romans called "city eating," that is, elaborate sauces and spices.

And they had horses. Some classical reporters told of their fierce prowess as horsemen. Their horses were small (as indeed were both their cattle and their hens), just over a yard high at the withers. A rendition of Celtic riders on the great Gundestrup caldron found in Denmark shows them with their feet almost touching the ground. Still, they loved horses and elevated them to a position in their pantheon. One of their goddesses, Epona, was often shown on horseback, and horse flesh was apparently the only meat they never ate. Scholars now believe the enigmatic white horses carved into the chalk hillsides of Britain, still maintained by English Heritage, were made by Celts.

Their motives for migration, apart from the simple de-

The Celts often drew and sculpted the human head. Hair on tiny, embossed gold-foil ornament from a princely tomb shows Etruscan influence.

Gold-leaf trim from chieftain's shoes was part of contents of intact burial chamber found in 1978-79. Also uncovered: a wagon and a couch.

Beaked bronze wine flagon from Moselle with a dog motif on its handle is decorated with inlaid coral and champlevé enamel.

Animals often decorated Celtic helmets. Bronze falcon's wings, cleverly hinged to flap, suggested a raptor's fierceness.

Celts liked bright splashes of color and often used enamel to achieve effect, as seen on this bronze harness mount.

Exquisitely embossed gilded silver caldron found in 1891 in a Danish peat bog (p. 119), Thracian in style, has Celtic symbols.

The horse's head occurs most often on coins, but this abstract repoussé bronze may have been a chariot fitting.

Celts venerated water sites; votive wooden pilgrims were offerings found at a sacred spring in France.

sire to find land and food, becomes more clear as their sites are revealed. Take salt, for example: rock salt was the oil of its day, a priceless resource used as a seasoning and a preservative. The richest deposits in Central Europe lay on the northern border of the Eastern Alps, and there the Celts slogged across ice and snow and dizzying precipices to mine it. They even invented a canny way of burrowing deep under and then mining their way up to the surface. There were mines at the Hallstatt site, at Hallein-Dürrnberg and Reichenhall, all exploited in the first millennium B.C. by Celts. The recurrence of the combining form *hall* led researchers to suspect that it may have been the Celtic word for salt.

Perhaps it was, but the language of the ancient Celts remains elusive because they had virtually no written documents. They were quick, however, to pick up the local scripts wherever they went. The inscriptions that have come down to us from the Celts use the alphabets of such languages as Latin or Greek, Etruscan or Semitic. They, like the Romans, were incorrigibly eclectic adapters and improvers. For all their skill with metal, the Celts didn't invent coinage, for example, but when their mercenary soldiers returned from foreign lands jingling those peculiar metal disks in their hands, the Celts became some of the finest and most innovative coin creators in the world.

Some scholars believe they invaded Italy in the first place because they liked the wine better than their own beer or mead–the honey drink of which they were also fond. They may have first come to Britain in simple quest of the tin that their sometime allies the Phoenicians had been importing. It is in Britain that many of the legendary Celtic heroes and heroines had their romantic day. And there, the very real Queen Boudicca led Celtic forces against the Romans. She succeeded in sacking London, Colchester and Verulamium before being defeated by the Roman governor Suetonius Paulinus, whereupon she committed suicide by taking poison.

King Arthur was a Celt?

Most evocative of all is the theory that, if in fact he ever existed, King Arthur, he of the Round Table and Camelot and Richard Burton up that tree on Broadway, was a Celt. (The Welshman Burton would certainly have voted "Yea.") Celtic chieftains were known to assemble their warriors to sit in a circle after a victory, with the person of highest status in the middle, along with a great caldron, for a night of celebration.

The Celtic heroic tradition involved high personal honor; its price, endeavor. Maybe Arthur really existed, probably in the early sixth century, but whether he did or not, he was the greatest contribution the Celts made to world literature. His legend began in Welsh heroic poem and story, and in the earliest version his court was not "Camelot" but "Celliwig," in Cornwall. In the early decades of the 12th century a cleric of either Welsh or Breton descent, Geoffrey of Monmouth, published *Historia Regum Britanniae*, a history of the kings of Britain, and set Arthur up not as some rude Celtic warrior but as the chivalric head of a band of noble knights. This version was an instant success, leading to Malory's *Morte d'Arthur* in English, and Boiardo and Ariosto and Dante in Italian. One medieval encyclopedia entry on Arthur and his legend runs to more than 600 pages and was compiled by 30 experts working in 11 languages. If Sir Thomas More was "a man for all seasons," Arthur is a king for all time and all nations.

As if that weren't enough, those lovers Tristan and Isolde were Celts, and those exotic priests the Druids

(Smithsonian, March 1988) most certainly were. A noble caste charged with guarding oral tradition and religion, learning and mythology, they were as powerful as the chiefs and even more terrifying because their weapon was not the sword but the word: the mysteries and rites, offerings and appeasements of the pagan world. It is they, firm believers in that oral tradition, whom we have to thank for the lack of written Celtic documents. If one committed faith or fact to memory, they reasoned, one would be more likely to retain it.

In the end most of the Celts were conquered by the well-organized legions of Rome, and later by the fury of the Franks, Alamanni and other Germanic groups as well as the Anglo-Saxons. They assimilated, intermarried, faded from memory except in pockets that remain in the British Isles and on the Breton coast. In Ireland, a rich, uninterrupted Celtic tradition has lived on. "Early Christian Ireland had a very impressive culture and played a leading role in the spread of Christianity and literacy in England and northern Europe," according to John T. Koch, associate professor of Celtic languages and literatures at Harvard. In Scotland, where the Celtic tradition is also strong, people say the sheep-raising Celts invented the kilt and the tartan patterns in which it is woven.

And let us not forget that the French still pride themselves on being "Gallic," and that one of their more popular cigarettes is that squat, dark, smelly Gauloise. Perhaps most telling are some of the continent's favorite comic strips and books, featuring a Celtic-Gallic midget called Astérix (*rix* meant "king" in Celtic), who for about 20 years has been beating up on Romans all over the place—to the delight of citizens who have never quite forgotten, or forgiven, Caesar.

Stretching across an English hillside, this attenuated horse marked hilltop fort or sacred site as Celtic. Visible from 20 miles away, the 360-foot-long figure was probably cut into the chalk cliff in the first century B.C.

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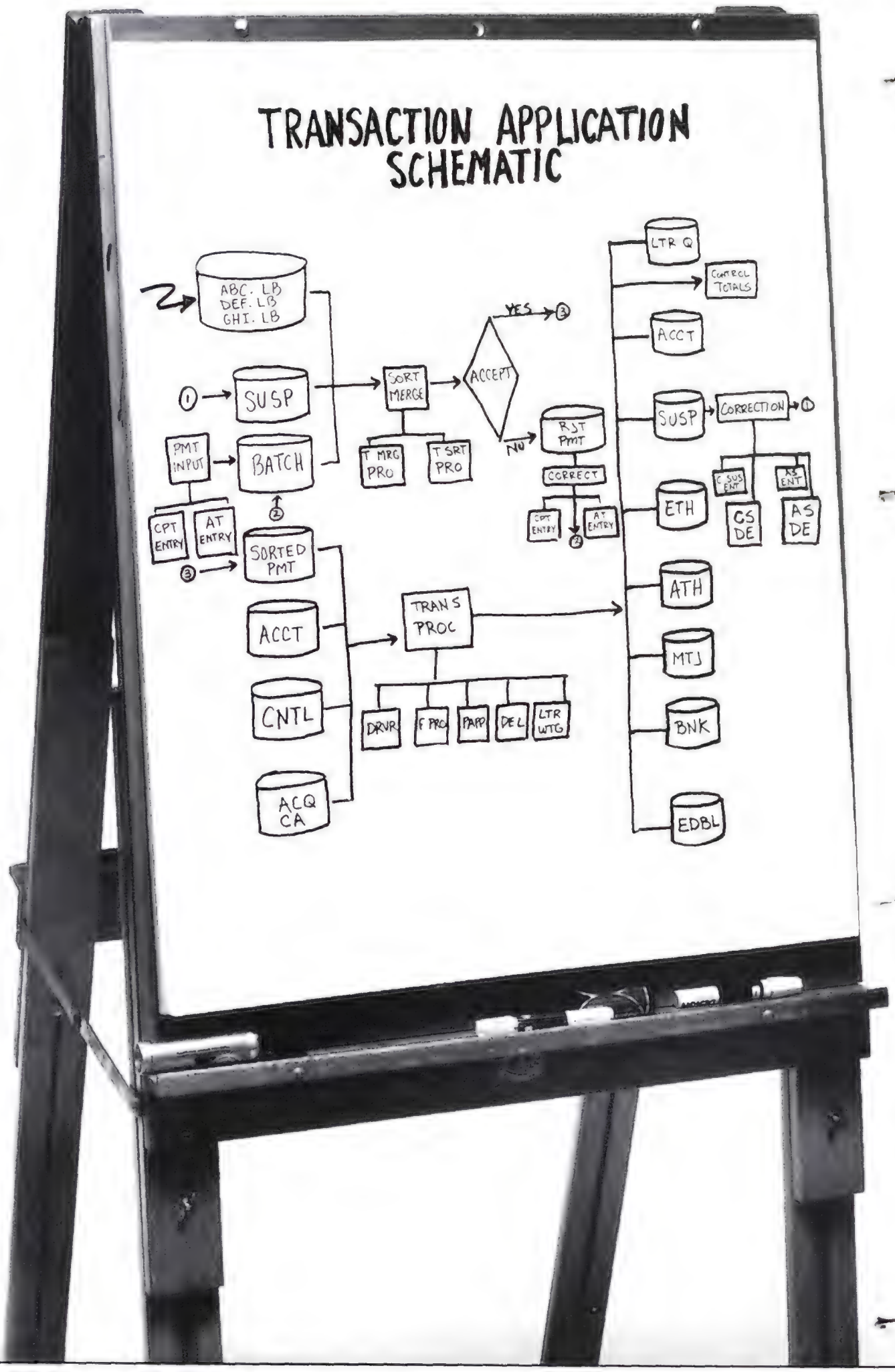

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By Israel Shenker

The provocative progress of a pilgrim polymath

Bertrand Russell, the freewheelingest philosopher of the century, tried to prove that life is real—and found it earnest

Among schoolchildren: 60-year-old Russell holds hands with his students at Beacon Hill in the 1930s.

Philosophers traditionally wonder about the nature of reality. How do we know it? How can we prove that we know it? Does the forest exist if there's no one around to see it? It doesn't, say the skeptical idealists. It does, say the philosophical realists. Is the external world, as idealists insist, merely a collection of sensations in one's head? These hairsplitting issues are still in doubt, though the conviction that objects exist, with or without witnesses, is on the rise. Even so, and even with the benefit of hindsight, it is hard to believe that such a one as philosopher Bertrand Russell really existed.

For in nearly every way imaginable, Russell's existence was no common matter. Philosophically, he was sometimes an idealist and sometimes a realist. Physically, he was something of an anomaly, a man slim, erect and fine of profile, who yet resembled the Mad Hatter or, as novelist Aldous Huxley once described him, "one of those extinct bird-lizards of the Tertiary." At the drop of a hat, he was prepared to dispute conventional wisdom, prevailing orthodoxy, even common sense—as well as his own most cherished convictions. He was sent to jail during World War I for writing that American troops in England might be used to intimidate British strikers. (The authorities claimed that Russell had prejudiced His Majesty's relations with the USA.) In the 1920s he visited the Soviet Union but, unlike most liberals of the time, saw it as a repressive disaster area. Yet in his old age Russell was best known as an anti-American, world-class peacenik.

As a thinker, he fixed Man's place as a footnote in an obscure portion of the cosmic volume. He once described people as "tiny lumps of impure carbon and water dividing their time between labor to postpone their normal dissolution and frantic struggle to hasten it for others." Before his death in 1970, however, he wrote: "Three passions, simple but overwhelmingly strong, have governed my life: the longing for love, the search for knowledge, and unbearable pity for the suffering of mankind."

In 1950, when he won the Nobel Prize in Literature, he became the only English philosopher and Nobel laureate ever denied a post at an American university for,

He founded school in 1927, encouraged free thought about sex and religion, and daily orange juice.

among other things, advocating and practicing free love. But he was also, without doubt, the most brilliant, the most inventive, the most fearless and the most controversial philosopher of the 20th century. As well as, hands down, the most prolific–more than 80 books, thousands of articles, 50,000 letters, about everything from the foundations of pure mathematics to the cruelties of Communism, from what makes a true statement true, to the need for birth control.

Arguably, too, he was the century's most influential philosopher. Though Gottlob Frege, a then obscure German professor of mathematics, is now regarded as the founder of mathematical logic, it was Russell, as the main creator of what is known as analytic philosophy, who first made questions about the nature and role of logic and language central to philosophy.

This astonishing polymath was born in 1872. His godfather was John Stuart Mill, the arch-advocate of liberty and social justice. His grandfather Lord John Russell (later, 1st earl Russell) had twice served Queen Victoria as prime minister and perhaps saved England from revolution by introducing the Reform Bill of 1832. His fa-

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ther, Lord Amberley, a freethinker, was one of the early (and thus shocking) advocates of birth control. His mother championed women's rights. Both died by the time Russell was 3. His paternal grandparents did not approve of the guardians chosen for him in the will made by such libertine parents, so they arranged to take care of Bertie and his older brother, Frank, themselves. Young Bertie was left to the care of his straitlaced grandmother, who wrote on the flyleaf of a Bible she gave him: "Thou shalt not follow a multitude to do evil."

He was taught at home by tutors and grew up shy, awkward and precocious. He read the volumes in his grandfather's library, having been told not to. Russell later described his first encounter with Euclid at age 11 as "dazzling as first love." Told that Euclid proved things, Russell found that hard to believe, since Euclid began with axioms that had to be accepted on faith. Believing that faith was unreasonable, young Bertrand set off on a lifelong quest for certainty. If everything needed a First Cause, or God, he would ask (like many an irreverent schoolboy), then who made God?

In 1890, at age 18, Russell went up to Cambridge, where he took a first in mathematics in 1893 and emerged from shyness into worldliness and women. At Cambridge he seemed priggish and romantic, so it was a shock to his grandmother when, at 21, he fell in love with Alys Pearsall Smith, an American Quaker five years his senior. Grandmother tried to dissuade him from marriage by convincing him that his family was tainted by congenital insanity. Grandmother was practiced in such deception since she'd attempted the same trick on Russell's father, whose erratic brother Willy had been institutionalized.

By unfortunate "coincidence," it turned out that at the very moment when Russell broached the subject of his engagement to Alys, Grandmother was busily writing a birthday note to Uncle Willy, a man perhaps less mad than merely eccentric. Grandmother bemoaned her own dead uncles' proclivity to have "fits" and shrewdly referred to the then new science of eugenics. His Aunt Agatha's well-marked copy of Shelley with its highlighted passages of her despairing hours was presented. The final blow was delivered by Grandmother's pet—the family doctor, William Anderson—who inferred from the "facts" and consultations with other equally dubious "experts" that if Alys and Bertie had children their offspring would be mad.

Russell and Alys countered, after much anguish, saying they wouldn't have children and would use contraceptives. Nevertheless, Grandmother—protesting her own ill health—extracted from Russell a promise to have a three-month cooling-off period. She had managed to arrange a position abroad for him at the British Embassy in Paris. "I had to copy out long dispatches attempting to persuade the French Government that a lobster is not a fish," Russell recalled, "to which the French Government would reply

At Cambridge, Russell, just 18, wore winged collars, was shy and brilliant.

The author, a frequent contributor, has written on such topics as Bess of Hardwick, H. W. Fowler and umbrellas.

Source: Forbes Subscriber Study, Don Bowdren Associates 1990. FYI is a supplement to Forbes

First wife, Alys Pearsall Smith (left), an American Quaker, married him in 1894.

Second wife, Dora Black, holding daughter Kate, helped found school.

Third wife, Patricia Spence (with son Conrad), had been the family governess.

Fourth wife, Edith Finch, did time with him for civil disobedience in 1961.

that it was a fish in 1713, at the time of the Treaty of Utrecht."

After marrying Alys in 1894, Russell gleefully supported his wife's efforts in favor of teetotalism and votes for women. He decided not to adopt a profession but to write his thesis—on the foundations of geometry—and a series of books, starting with one on German social democracy. He also began his serious work in mathematics.

At Cambridge, Russell had come under the spell of lecturer J.M.E. McTaggart, a philosophical idealist who believed in the actual existence of the abstract concepts—like "greenness" and "roundness"—that unify our perceptions. By 1898, influenced by another Cambridge philosopher, G. E. Moore, Russell had moved further toward philosophical realism, contending that what common sense *says* is real, *is* real.

As a mathematician who believed in reality, he set out to prove by logic that the proofs of mathematics are part of reality, and to show the usefulness of mathematics in giving a true account of the real world, something that laymen take for granted but philosophers do not. "Logic and mathematics," he wrote, "are the alphabet of the book of nature, not the book itself."

On the last day of the 19th century, at the ripe old age of 28, he wrote the last word of the first volume of *The Principles of Mathematics*, the work that explained in words the bases of a thesis later worked out in the arcane symbolic language of *Principia Mathematica* (coauthored with mathematician and philosopher Alfred North Whitehead). *Principles* put Bertrand Russell on the philosophical map and drew praise from his harshest critics, the English idealists, who nevertheless went on insisting that the world is merely a reflection of the mind.

Having temporarily shed his idealist doubts about the existence of the external world, Russell was delighted to think of tables and chairs, in fact the entire furniture of the Universe—and the Universe itself—as existing even if no one was aware of them. Eventually he summed up the Universe as "all spots and jumps, without unity, without continuity, without coherence or orderliness or any of the other properties that governesses love."

In *Principles* he was also much preoccupied with solving the classic problems of verbal paradox—at once seemingly trivial and difficult—which for most of us seem like nothing much, but for philosophers illustrate the slipperiness of language as an intellectual tool. One of the most famous, which has been studied by philosophers since ancient times, is known as the Liar's Paradox, in which a Greek meets a Cretan on the road. The Cretan declares, "All Cretans are liars." If the Cretan is lying, he is telling the truth. But if he is telling the truth, he must be lying. In this example and a similar one that became known as Russell's Paradox, the contradiction occurs because of the way ordinary language talks about classes

of things–"all Cretans," for instance–as though a class were a thing, too, and could have the same properties as things. The solution, Russell said, is the analytic method, the breaking down of language until it shows itself to be a set of sensible substatements–or nonsense. In this way, many philosophical "problems" just disappear.

By 1900 Whitehead had joined him, and together they produced the vast and daunting three volumes called *Principia Mathematica*. The manuscript–which couldn't be typed in the way it was written, mostly in symbols–was so enormous that Whitehead and Russell had to haul it to the printer in a wheelbarrow. Copyediting the 6,000 pages would have been a stupefying task, but the manuscript went straight to the typesetter. Cambridge University Press estimated that it would lose £600 on the work and assumed half the deficit. The Royal Society chipped in £200. Russell and Whitehead made up the rest out of their own pockets. That earned them minus £50 each for ten years' work, but the world had a classic–albeit an impenetrable one. With his delight in exaggeration, Russell said that he knew of only six people–three Poles and three Texans–who had persisted to the end of the third volume. As one meticulous biographer pointed out, the number *1* was not defined until page 347, and the irrefutable demonstration that $m \times n$ equals $n \times m$ did not emerge till deep in volume two.

Yet, very rudely stated, the work changed the way English philosophy was done; it simply skipped the war between idealists and realists by establishing as the only reputable method the analytic approach to philosophical questions–which meant reducing complex terms to their simplest elements, what Russell later called "logical atoms." By the end of 1913 only 500 copies of *Principia Mathematica* had been sold. Today any university library would as soon be without it as the *Oxford English Dictionary*.

The labor of *Principia* took its toll. When he and Whitehead finished, Russell said, "We both turned away with intellectual nausea." As early as 1901, witnessing the suffering of Whitehead's ill wife, Russell had had something like a mystic illumination in which he saw "the unendurable loneliness of the human soul." Deciding that nothing can penetrate that loneliness save the highest intensity of love, he concluded that, among other things, war and force were wrong. (Some historians believe the impetus was the fact that Russell had fallen in love with Evelyn Whitehead but was unaware of it.)

An additional illumination, which arrived a year later while he was cycling, revealed that he no longer loved his own wife. Russell suffered enormous guilt about it. The couple lived together until 1911 and did not divorce until

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1921. Years later, after he happened to spot Alys at a play, he could still write, "her power of making me suffer irritates me against her, but it persists all the same . . . her suffering was like the suffering of an animal–like a dog run over by a motor–with the same unbearable appeal." Down the road lay a long series of love affairs–notably with Lady Ottoline Morrell, a renowned literary hostess, and Lady Constance Malleson, an actress–as well as three marriages of various duration.

When World War I got under way, Russell was teaching at Cambridge, and the carnage jolted him out of his busy academic isolation. "One effect of [the First World] War," he wrote, "was to make it impossible for me to go on living in a world of abstractions. I used to watch men embarking in troop trains to be slaughtered on the Somme because generals were stupid. . . . All the high-flown thoughts that I had had about the abstract world of ideas seemed to me thin and rather trivial in view of the vast suffering around me."

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Longtime love, Lady Ottoline Morrell, called him "supremely intellectual."

Philosopher Alfred North Whitehead coauthored *Principia Mathematica.*

To his astonishment he discovered that average men and women were delighted at the prospect of war. Appalled both by wartime propaganda and by the horrors of battle, Russell spoke out publicly against the war and in favor of conscientious objectors. His meetings were twice broken up, and he was physically assaulted by a mob while the police stood by. He was saved from bodily harm only because a woman in the crowd protested, "But he is the brother of an earl." In 1916 he was fined £100 for a leaflet on behalf of conscientious objectors. He refused to pay, and his possessions at Cambridge were seized and sold off, some to friends who later restored them to him; others were lost forever. His lectureship at Cambridge was withdrawn.

In 1918, after he had published the article suggesting that American soldiers arriving in Britain would be strikebreakers, he was sent to Brixton Prison for insulting an ally. "Religion?" asked the warder. "Agnostic," Russell replied. After asking how to spell it, the kindly warder said, "Well, there are many religions, but I suppose they all worship the same God."

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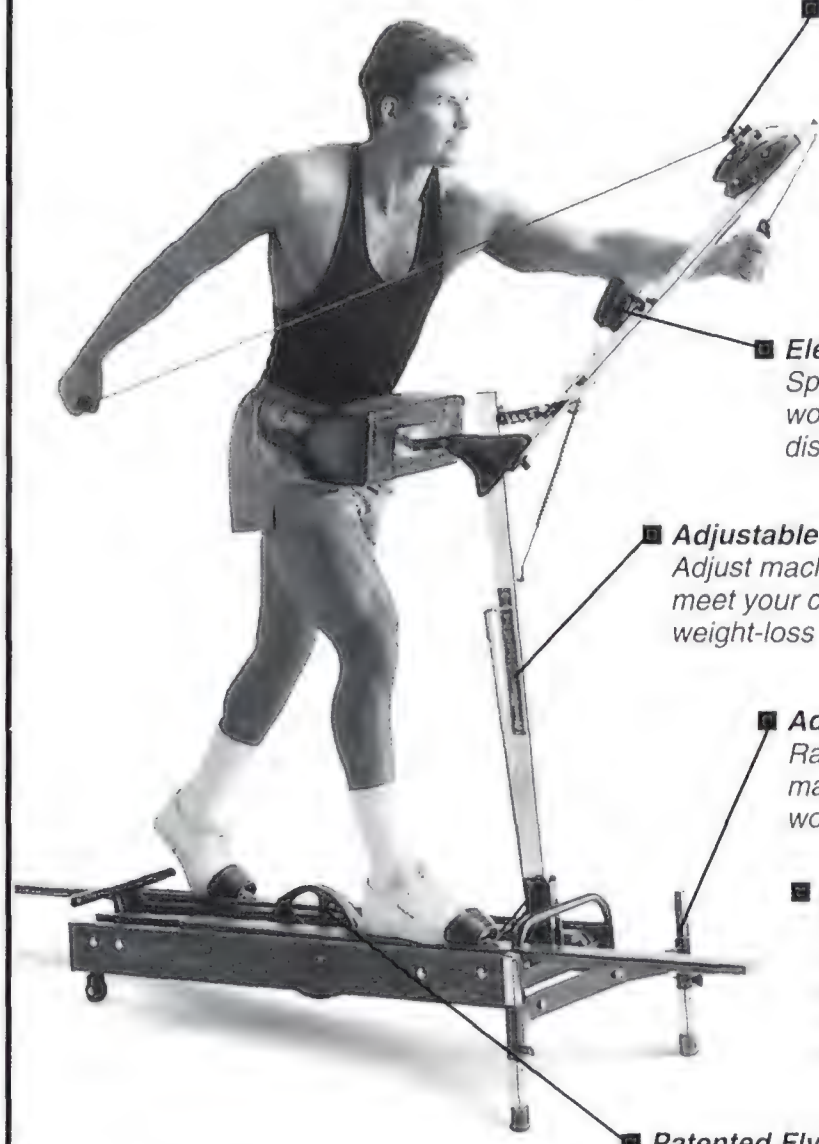

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2917 wrote one book, began another and read scores. He had no more appointments, no difficult decisions to make, no fear of callers, no interruptions of his work. While racing through Lytton Strachey's *Eminent Victorians*, an experiment in irreverent psychological biography, he laughed so loud that the warder came to remind him that prison was for punishment. In his Brixton cell, Russell wrote *Introduction to Mathematical Philosophy*, which, although it is far from math without tears, did a good deal to stimulate students and help popularize the subject.

He also began *The Analysis of Mind*, in which he concluded that mind and matter are different forms of the same substance and can't be broken down to matters of logic. Russell once described mathematics as "the subject in which we never know what we are talking about, nor whether what we are saying about it is true." (He also later explained that when he became too stupid for mathematics he switched to philosophy, and when too stupid for philosophy, to politics.) Depressed by a world in which virtue appeared to be punished and vice rewarded, Russell

In 1923 Russell (with son) failed as a Labour candidate for Parliament.

lamented "the absurdity of spending our little moment in strife and heat." On went his painful, skeptical search for "something transfigured and infinite—the beatific vision—God." It was like "passionate love for a ghost," he suggested, noting, "I do not find it, I do not think it is to be found."

Increasingly interested in taking social action, in 1920 Russell went with a British delegation to the Soviet Union. He returned aghast at the regime—which many were then seeing as a workable vision of the egalitarian future—and swiftly wrote a book attacking Communism. That same year, invited to lecture in China, he traveled with Dora Black, a woman of fiercely independent views. Russell fell gravely ill and advised his companion that if she was short of money for his funeral she should publish a notice: "Russell is dead. Money needed to bury the old dog." The next year, following divorce from long-suffering Alys, he married his Dora. A son and then a daughter resulted.

Russell had earlier tried to become a Liberal Party candidate for Parliament from Wimbledon, but was rejected when he scorned the suggestion that for the sake of appearances he go to church at least occasionally. In 1922 and '23, running on a Labour ticket, he twice failed to win a seat in Parliament. Then it was Dora Russell's turn to run—and lose.

When his brother, Frank, went bankrupt, Russell and his wife bailed him out by renting the brother's large country house and in 1927 set up the Beacon Hill School. It was a chance to implement their theories on education. "A good deal of trouble is taken to make the education such as will not inspire patriotism," Russell wrote one parent. "As for teaching the brotherhood of man, I have the same objection that I have to explicit moral instruction in that it tends to produce either hypocrisy or rebellion."

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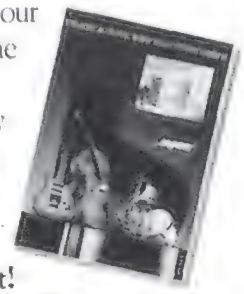

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Marriage and Morals stirred outrage in America, and a funny illustration.

thing had to be done to deal with them. Apocryphal tales abounded. There was the story of the local rector who rang at Beacon Hill's front door. It was opened by a little girl without any clothes on. "Good God!" the rector exclaimed. "He doesn't exist," the girl said, firmly closing the door.

Having given away most of his inherited wealth, Russell turned resolutely to lecturing and writing to support his family and the unprofitable school. By 1926 his book *On Education* was doing well, as did *The A.B.C. of Atoms* and *The A.B.C. of Relativity*. These were for a popular audience. Since Russell understood the post-Newtonian physics of atoms and relativity he wrote in his usual clear style about these subjects. *The A.B.C. of Relativity* is the philosophy of physics. *The A.B.C. of Atoms* is one of the earliest accounts of the possibilities inherent in the release of atomic energy and fission.

Marriage and Morals (1929) suggested that complete fidelity was unlikely in most marriages but urged couples to remain on good terms nonetheless. Russell came to feel that every theory about marriage had its drawbacks. His own second marriage was breaking up, and he moved on, leaving Dora–who had already had two other children by a lover while married to Russell–to run Beacon Hill School on her own.

On the death of his brother the earl

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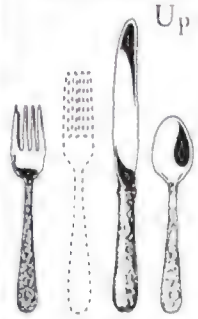

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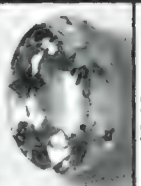

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in 1931, Russell acquired a title but inherited an earl's debts. He used to say that he saw only one way of getting rid of the title–through beheading on conviction for high treason–but he resigned himself to the lesser evil and kept his wits about him.

In 1936, at age 64, he entered his third marriage, to Patricia Spence, and a son was born the next year. The year after, the University of Chicago welcomed the practical philosopher as a visiting professor; from Chicago he went to UCLA; then he was to go to the College of the City of New York. There, a student's mother promptly sued the municipality, her lawyer describing Russell as "lecherous, libidinous, lustful, venerous, erotomaniac, aphrodisiac, irreverent, narrow-minded, untruthful, and bereft of moral fibre." Prominent church leaders and politicians echoed their horror at the appointment of an atheist advocate of skepticism and free love. Only the student body and many academics protested in Russell's favor. One was Einstein, who, with tongue only partly in cheek, wrote that "great spirits have always faced violent opposition from authorities."

The judge ruled against New York. In the English edition of Russell's *An Inquiry into Meaning and Truth*, the title page subsequently listed his various honors and teaching positions, concluding: "Judiciously pronounced unworthy to be Professor of Philosophy at the College of the City of New York (1940)." No one could have been more pleased, Russell told friends.

Albert Barnes, panjandrum of the Barnes Foundation near Philadelphia and creator of one of America's greatest private art collections (see page 96), gave Russell a five-year contract to lecture at the foundation on philosophy. When the new Countess Russell attended her husband's talks, she was asked not to come again. She was barred on grounds that Barnes had not invited her and that her knitting disturbed his other guests. Alleging that Russell had ignored a commitment not to lecture

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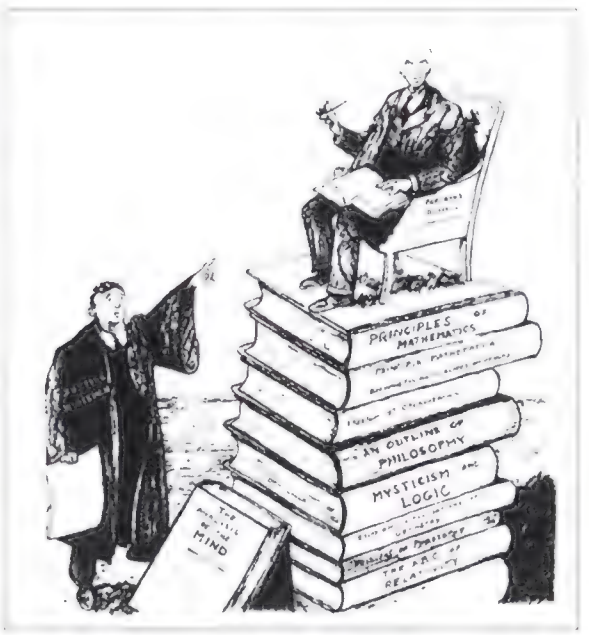
elsewhere, Barnes peremptorily canceled the contract in 1942. Russell sued successfully for back pay, then made thousands more by using his discourses as the basis for a witty, informative and readable book, the unlikely best-seller entitled *A History of Western Philosophy*.

During World War II, believing that Hitler had to be resisted, Russell officially abandoned his pacifism. Still, he did not return to beleaguered Britain until 1944. His son John, serving in the British Naval Reserve, was assigned to a language course. Russell wrote a friend: "John is still in London, learning Japanese forms of politeness. One would have thought forms of rudeness more useful."

At war's end, Russell became concerned and, by his own later admission, confused about the best response to the nuclear peril. In 1948, at age 76, he advocated that the Americans should threaten Russia with the bomb to enforce nuclear disarmament. He also preached an end to nationalism in favor of world government, even if it had to be dominated by the United States. In a recent book, author Alan Ryan caricatures Russell's view of America as an "illiberal, hysterically anti-communist lynch-mob-governed, racist slum which nevertheless ought to take up the reins of World Govern-



Puritan pique triumphed in 1940 when New York's City College dumped him.

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ment." But Russell could be loftier. "I appeal as a human being to human beings: remember your humanity, and forget the rest," he said in an apocalyptic BBC broadcast. "If you can do so, the way lies open to a new Paradise; if you cannot, nothing lies before you but universal death."

In 1950 Russell was given the Nobel Prize in Literature–for "philosophical works . . . of service to moral civilizations." The Swedish committee cited the graceful clarity, consummate wit and delectable irony of his writing. Russell received the award with mixed feelings since he would have preferred it to have been given for philosophy. (The Nobel Committee, however, did not have a prize for philosophy.) He had emancipated himself from youthful devotion to purple prose in favor of an astonishing fluency and directness. "I'm paid by the word," he suggested, "so I always choose the shortest words possible."

By 1958 Russell had been chosen president of Britain's Campaign for Nuclear Disarmament, and he was the leading figure in the Committee of 100 that backed civil disobedience. At age 88, along with his fourth wife, Edith Finch, an American whom he had married in 1952, he was sentenced to two months in prison for inciting to civil disobedience. Their sentences were commuted to a week, served in a prison hospital. "Without having the temperament of a rebel," Russell noted, on reaching 90, "the course of events has made me gradually less and less able to acquiesce patiently in what is happening."

During the Cuban Missile Crisis in 1962, he launched his own peace initiative. During the Vietnam War he was the driving force behind the tribunal that charged the United States with war crimes. Because he enjoyed teasing Americans, he thought they enjoyed being teased. When accused of anti-Americanism, Russell noted that two of his wives were American. He once told the Archbishop of York that he prayed nightly, "Help me to love the

At 88 Russell led a sit-in protesting nuclear powers, both East and West.

Americans," but his prayers had not been answered.

Russell wrote prolifically not only on logic, mathematics, politics, ethics, science, literature, history, biography and religion, but on his own adolescent longings and sunset amours. With apparent effortlessness, sitting upright, puffing rhythmically at his pipe, never fidgeting, rarely hesitating, never rewriting, he turned out reams of smoothly flowing prose. The first drafts, he explained, were composed in his head, where it was easy to cross things out. That prepared him for the second–and final–written drafts. "Never alter anything you write," he advised, "especially if someone else asks you to." If he had a manuscript of 60,000 words to deliver, he might wait till 20 days before deadline, then simply compose 3,000 words a day. For years he wrote down-to-earth weekly articles for the Hearst press with titles such as "On Wife-Beating," "Who May Use Lipstick" and "Should Socialists Smoke Good Cigars?"

Whitehead called Russell a "Platonic dialogue in himself," and biographer Alan Wood described Russell's philosophy as "a battleground on which he

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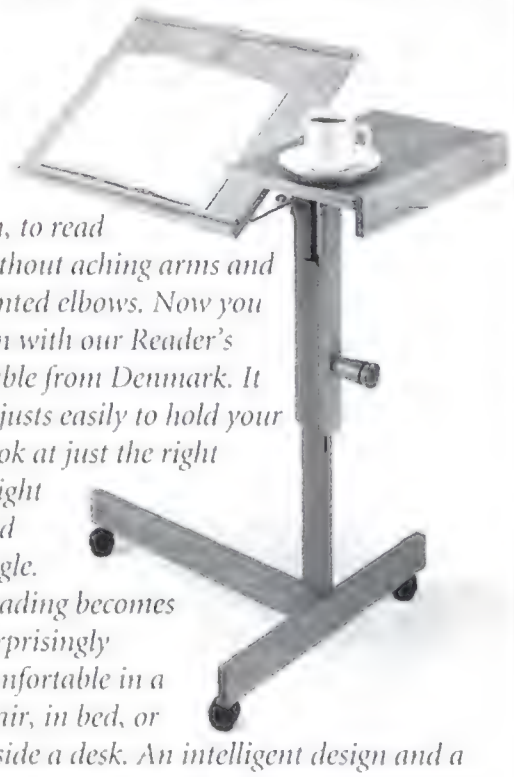

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fought losing battles against himself." Russell always saw two sides to a question, then sought to tease out certainty. Yet by his own admission he failed–as do all philosophers. Failure in his quest for certainties did not deter him from providing guides for the perplexed, even a provocative supplement to the Ten Commandments. Example: "No opinion has ever been too errant to become a creed."

In recent years the number of studies of Russell's life and work has been increasing–more than 20 volumes in the past two years in German, Italian, French, Russian, Chinese and English. Canada's McMaster University purchased Russell's papers and has just reached the tenth volume in an edition of his works, a gargantuan undertaking that will eventually total 100 volumes. The first volume of his selected letters, marked by very explicit recollections of sins and longings past, has just been published.

Fairly early in his life Russell accomplished wonders in seeking to determine whether anything could be known or should be asserted, and thereafter devoted much of his energy to crankily trying to make the world a slightly better place than it is. He once suggested that his epitaph should be: "He lived six years in America and did NOT write a book about it." For all his quixotic irreverence, his penchant for comic understatement and polemical exaggeration, Bertrand Russell, like George Bernard Shaw, acquired (and deserved) the very rare status of a cantankerous, venerable and beloved international treasure.

Toward the end of his life, his fame became almost planetary. In the course of the decades, he dined with eight prime ministers, corresponded with eminent world figures, joined scientists from East and West to end the arms race, and served as agony uncle to thousands of unknown people whose letters he dutifully answered. "Be isolated, be ignored, be attacked, be in doubt, be frightened," he once wrote to a student, "but do not be silenced."

A not-inappropriate mosaic in floor of London's National Gallery shows Russell hauling Truth from a well. He once summed up the Universe as "all spots and jumps, without unity. . .or any of the other properties that governesses love."

National Gallery, London

Book reviews

The Way of the World
Nicolas Bouvier
Translated by Robyn Marsack
Marlboro Press, $20.95

Only a very brave traveler would today attempt to duplicate Nicolas Bouvier's footloose journey from Yugoslavia to the Indian subcontinent in 1953. And only a very lucky one would manage to survive the assorted wars and rebellions that have made the lands along his route modern bywords for chaos. Yet the tragic fates of the Balkans, Iran and Afghanistan lend haunting poignancy to Bouvier's sympathetic, often witty, descriptions of a world that has been so transformed by subsequent events that it seems to lie centuries, rather than mere decades, in the past.

The trip's premise is self-consciously flimsy: an impulsive decision to drive Bouvier's good friend Thierry to his wedding in Sri Lanka. "The programme was vague; the main thing was just to get going." The two young Swiss naively attempt to hawk Thierry's paintings on the streets of Belgrade and Istanbul, spend a languorous winter among the Armenians of northern Iran, and embark on a foolhardy jaunt into the mountains of Kurdistan. Forever strapped for cash, they offer literary lectures to the grandes dames of Tehran, and play accordion and guitar in a dive run by a Welsh colonel in the Pakistani backwater of Quetta. Near journey's end, the enterprising author even hires on with archaeologists digging Greco-Buddhist ruins at the Afghan border with Russia.

Youthful swagger is mitigated by Bouvier's irrepressible good nature, and by elegant prose that can transform poverty into poetry, as it does the old men huddling for warmth in the wintertime teahouses of Tabriz, whose "ageless faces, so

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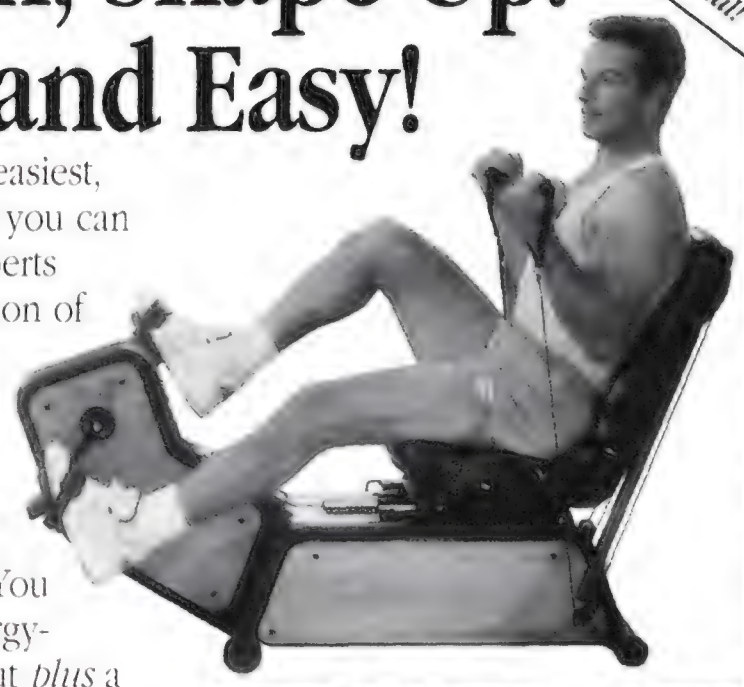

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bare and shiny with use that they let the light through, would begin to glow like old cooking pots."

But this is more than a young wanderer's journal. Bouvier's insights are sometimes prescient. He finds Yugoslav Communism, established just a few years earlier, to be a loutish business of "loudspeakers, straps and buckles, Mercedes full of ruffians, bouncing over the potholes" that already seems obsolete: "the whole apparatus already curiously old-fashioned, and as arbitrary as the heavy stage-machinery which brings down the flies at the play's end, with dead gods and clouds in *trompe l'oeil*." Later, listening to officials of the U.S. Agency for International Development complain that Iranians seem ungrateful for their new American-built schools, Bouvier observes: "School is one of the main ingredients of the American recipe for happiness, and so in the American imagination a country without a school must be the very image of a backward country. But recipes for happiness cannot be exported without adjustments, and in Iran the Americans had failed to adapt theirs to a context which puzzled them. That was the source of their difficulties. Because there are worse things than countries without schools: countries without justice, for instance, or without hope."

Auto travel was then still a risky proposition in Asia. Bouvier's rattletrap Fiat had to be manhandled up nearly perpendicular scarps from the coast of the Black Sea, as well as repeatedly unloaded and pushed through dunes of near-liquefied Persian sand. When a breakdown left the travelers stranded, passing truckers obligingly hoisted the small Fiat onto their own vehicle for the ascent of one particularly difficult pass.

But there was worse to come. The truck's brakes and gears broke loose on the descent, sending it careening into a caravan of nomads. "There ensued a whirlwind of rags and curses, falling and yelling, bells pealing, panic-stricken camels galloping off, an explosion of hens." To his astonishment, Bouvier found himself alive though blood-spattered, tumbled onto a hillside amid the unfazed truckers, for whom such events were, apparently, all in a day's work. "By five o'clock the engine was working. Trailing a rock weighing at least half a ton as our brake, we rolled on down to the plain." By evening, the author was stretched in a courtyard in Shiraz, "this exquisite, quiet town, smelling of lemon," half-asleep beneath a shower of shooting stars.

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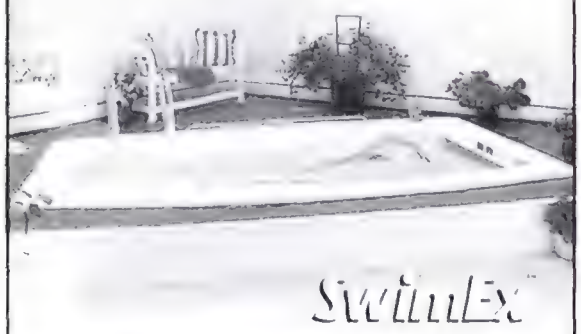

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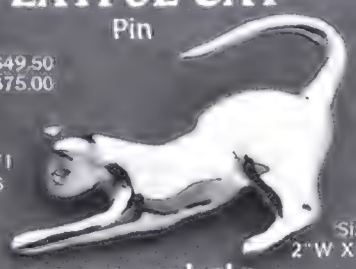

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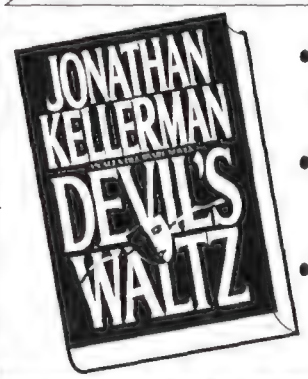

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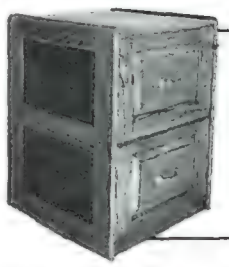

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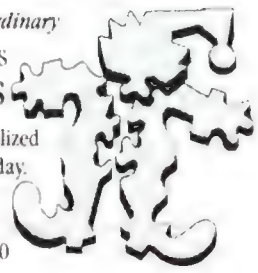

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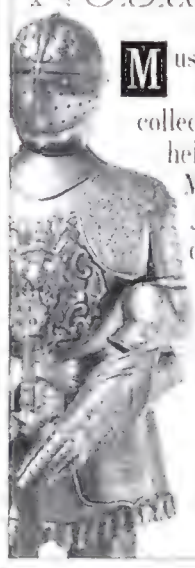

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Bouvier leaves us facing the black crags of the Khyber Pass. It seems an abrupt and ambiguous ending, at first, still hundreds of miles short of his proclaimed destination. But it is deliberate. Everything–the December air, "this Apollonian landscape," the sputter of a hookah–"had become elements of a plot in which I had arrived, after many obstacles, in time to play my part." It is an elliptical, Gallic way of saying that the journey is its own fulfillment, a childhood dream of the exotic steppes now become a reality, a life. As Bouvier puts it: "Travelling outgrows its motives. It soon proves sufficient in itself. You think you are making a trip, but soon it is making you–or unmaking you."

Fergus M. Bordewich is the author of *Cathay: A Journey in Search of Old China.*

Rosa Parks: My Story
Rosa Parks with Jim Haskins
Dial Books, $17

When, on December 1, 1955, Rosa Parks refused to give up her seat on a Montgomery, Alabama, bus to a white passenger, she was arrested for violating the state's segregation law. Her arrest inspired a yearlong bus boycott that propelled the then 26-year-old Rev. Martin Luther King jr. to leadership in the civil rights movement. It also led to a 1956 Supreme Court ruling that declared Montgomery's segregated busing system to be unconstitutional.

Parks, now 80 years old, quickly became a national symbol of quiet assertiveness. Her blend of unassailable dignity and humble origins embodied the goals and spirit of the nonviolent mass movement that she, in effect, inaugurated. An explanation of how life led her to that juncture, her concise book also corrects an all too popularly held version of her deed: it was not tired feet that made her refuse to get up. "The only tired I was, was tired of giving in," she writes.

This plainspoken narrative traces the origins of her family's defiance of racism back to the era of slavery. Her grandfather, for example, the son of a white plantation owner and a slave housekeeper, flouted custom by insisting on shaking hands with whites and often omitting the obligatory "Mister." "How he survived doing all those kinds of things . . . ," Parks observes, "I don't know."

Parks matter-of-factly recounts how it felt for a black child to live in the segregated South, from watching Klan members thunder past her door to learning how innocuous spats with white young-

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sters could turn dangerous, even potentially mortal. Throughout most of rural Alabama, no schooling was offered to blacks beyond the sixth grade, and further education required that young Rosa live with relatives in Montgomery. When she finished high school in 1933, only a tiny percentage of Montgomery's blacks held that diploma; in 1940 it was still only 7 percent. She was already a pioneer.

Over the next two decades, Parks grew into a seasoned campaigner for basic civil rights. With her husband, Raymond, she worked on the defense of the Scottsboro Boys, whose trial was the most controversial racial case of the Depression years. She describes her two-year effort to register to vote: success included having to pay a hefty retroactive poll tax, one of the rules that had kept all but 31 blacks from the Montgomery voting rolls.

Then Parks became secretary (and second female member) of the local chapter of the National Association for the Advancement of Colored People and began to document discrimination cases. "But we didn't have too many successes in getting justice," she observes. "It was more a matter of trying to challenge the powers that be, and to let it be known that we did not wish to continue being treated as second-class citizens."

In the summer of 1955, Parks attended a workshop for community leaders on school integration, at the Highlander Folk School, in Tennessee. Experiencing racial harmony there had a powerful effect on her. "I was forty-two years old, and it was one of the few times in my life up to that point when I did not feel any hostility from white people," she writes. Four months later came her arrest.

As in any imposing drama, every nuance of that fateful event acquires meaning, and Parks re-creates the scene vividly. To seat a standing white passenger in a segregated row, the driver ordered four blacks to vacate seats; only Parks refused—and the police were called. The driver, it turned out, was one who had evicted her from his bus years earlier for refusing to reboard through the back door after paying her fare. She had habitually avoided his bus since. "If I had been paying attention," she says dryly, "I wouldn't even have gotten on that bus."

The pace picks up as she describes the calls for a one-day bus boycott on her trial date, the charged community meetings, the bombings of King's home and others', and the elaborate grass-roots taxi service that carried 30,000 people a

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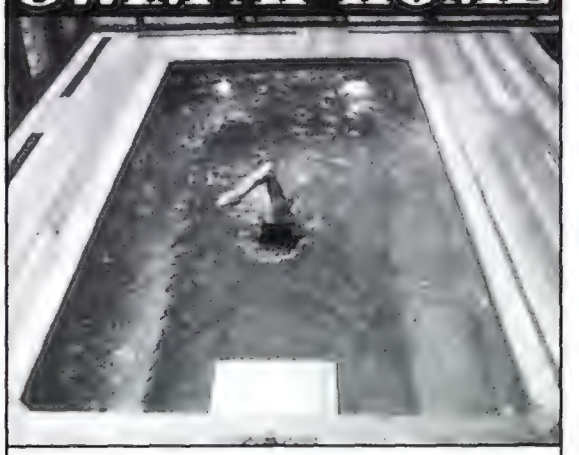

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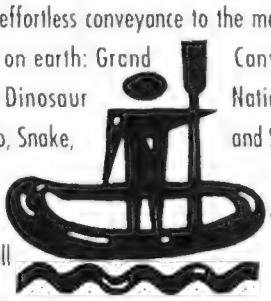

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day for the next year. But Parks and her husband both lost their jobs and moved to Detroit in 1957; eight years later U.S. Representative John Conyers hired her to work in his office there. Having "never gotten used to being a 'public person,'" she is characteristically terse on the economic strain that accompanied her celebrity during the height of the civil rights movement. But that reserve is what gives her tale resonance.

Daniel Cohen writes about social history from his studio in New Jersey.

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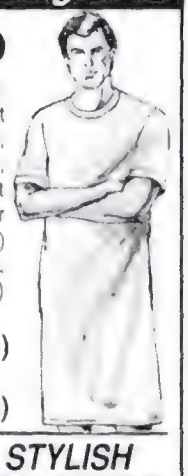

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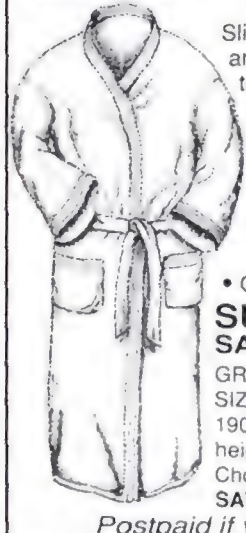

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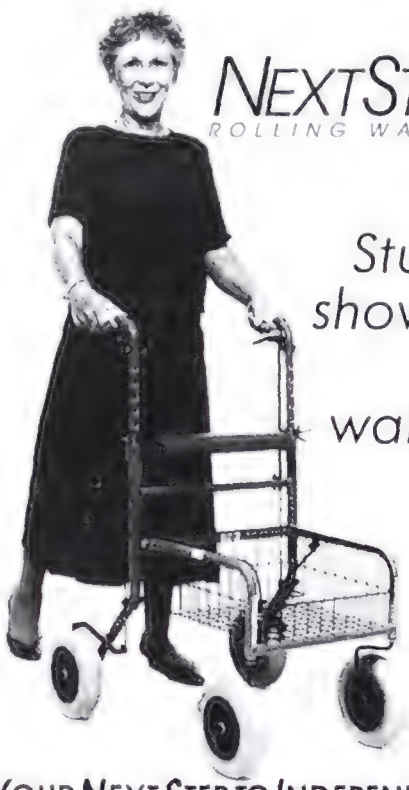

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Sharks (p. 32)

Sharks in Question: The Smithsonian Answer Book by Victor G. Springer and Joy P. Gold, Smithsonian Institution, 1989

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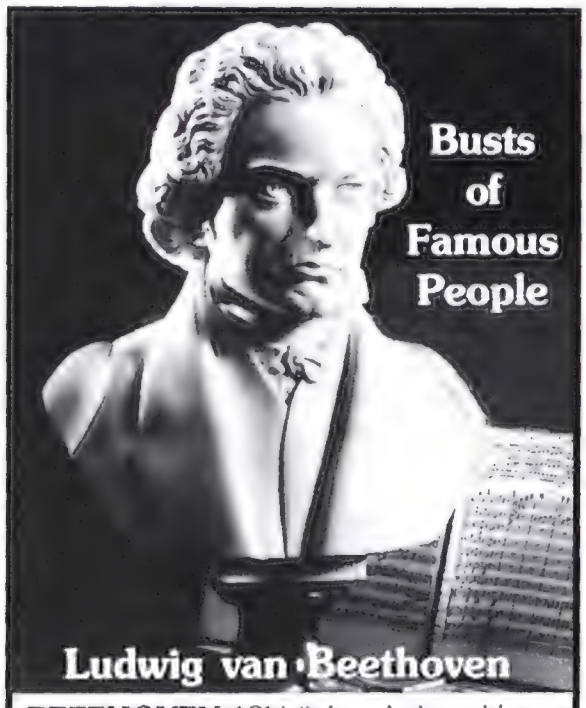

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Jefferson's Monticello (p. 80)

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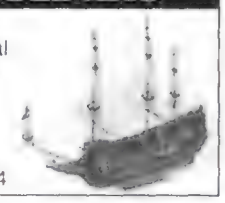

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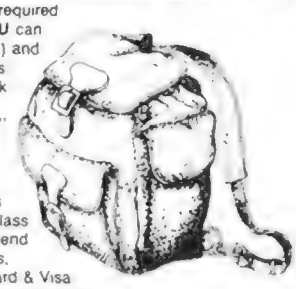

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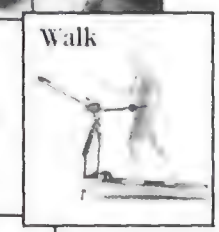

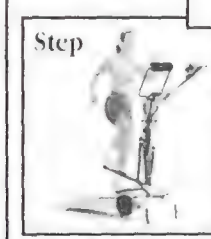

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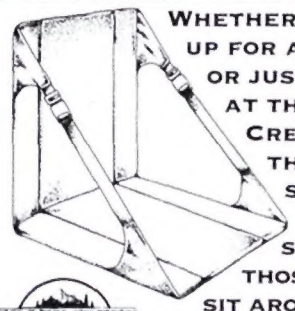

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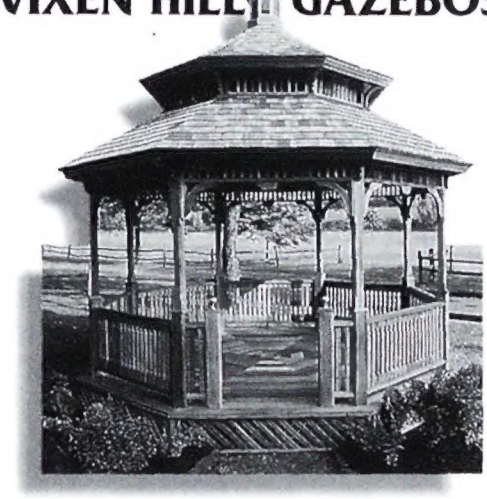

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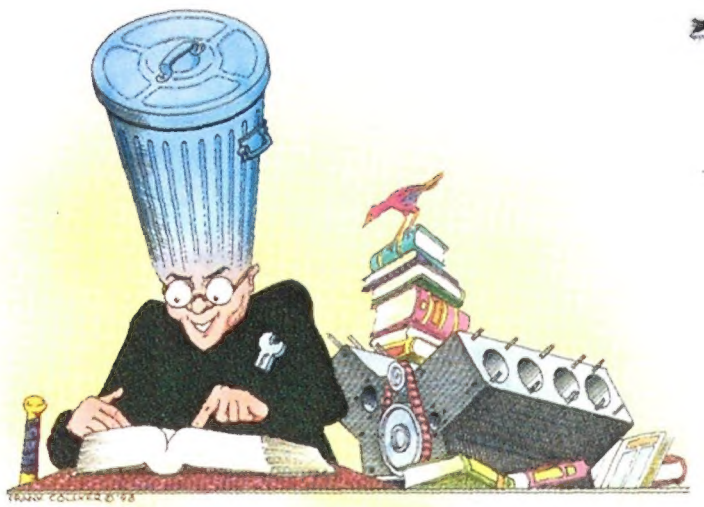
By James Bishop

Garbagebrain is my name, and useless knowledge is my game



I know I can take apart a Chevy 327 engine with a screwdriver and a half-inch wrench. I wouldn't, mind you. As if to emphasize the uselessness of my knowledge, Chevy stopped making 327s in 1969. Yet I'll carry this information with me to my grave.

My oily half-inch wrench has sentimental value, like my first phone number at the brick parsonage where I grew up in Essex, New York. I called the old number recently, just to see if the people to whom the phone company passed it on were. . . worthy. Or to see if I'd find myself, at 12, and be able to talk to me for three minutes. They were, and I didn't.

I hoard useless knowledge like some people hoard rubies and opals. I don't *need* my useless knowledge, but it's fun to pull some old nugget out of storage once in a while and hold it up to the light. For example, I still know the combination (8–22–0) to the lost lock that once secured my "important papers" (which I've also lost) at school.

When I went away to college, I dabbled for three semesters in a useful major, biochemistry. Then I repented and dove headlong into uselessness. As a new English major, I read James Joyce's *Ulysses* (one anagram for which is "Uselyss"), loved writing religious parodies and debated with much seriousness as to whether modern poetry could rhyme and still be poetry.

After four years I graduated smack into the Recession of '83. I couldn't land a writing job and couldn't afford a teaching job (at $9,000 a year), so I joined the Air Force. Barely. They weren't hiring "fuzzy" majors. The reason they valued my education? When I was a freshman, I'd taken a year of calculus. Within two years, though, I was back in the business of uselessness, teaching English at the Air Force Academy.

Of course, there's an entire industry devoted to useless knowledge. We have games in which the person possessing the most "trivial" knowledge wins. (Something seems backward there.) For Christmas a couple of years ago, I bought my wife a useless-knowledge daily calendar. The January 1 entry informed us that Elsie the Cow was the 1972 guest of honor in the Tournament of Roses Parade in Pasadena, California.

Aficionados of useless information can subscribe to a plethora of newsletters and magazines such as the *Mayberry Gazette*, published by the Andy Griffith Show Appreciation Society, and *Stripper Magazine*, which covers (or uncovers) the world of "exotic dancing." But by far the biggest source of useless knowledge is the sports industry. Do I know which wild mushrooms are edible? No. Could I set a broken arm? Probably not. Am I able to mix a dry martini? Not without directions. Can I tell you who caught the final fly ball in the 1969 World Series? Of course. It was none other than Cleon Jones, who has a J-shaped scar on his cheek from an auto accident that threw him into his windshield.

I don't even feel sentimental about Cleon anymore. And no one, as I recall, has ever asked me to recite the complete outfield lineup of the 1969 New York Mets (Cleon Jones, Ron Swoboda and Tommy Agee), or ever seemed mildly impressed when I provided this information unasked. You can't even give away useless knowledge.

Some of my useless knowledge even I consider useless, and I have an extremely high tolerance for that sort of thing. I still remember uninspired lyrics from my senior year in high school. That was the era of such beauties as "(Shake, Shake, Shake) Shake Your Booty." And more. "No more Mister Nice Guy, / No more Mister Clean, / No More Mister Nice Guy, / They say he's sick, he's obscene." * Yup. KC and the Sunshine Band, Alice Cooper, and my half-inch wrench–all three will cling to me till I die, like burrs on the fabric of my memory.

There's a gray area of useless knowledge. Stuff that has no sentimental value, isn't annoying or dangerous, but has no real worth. Birding is a good example. If you have the ability to spot one red-whiskered bulbul in a bunch of ugly, black birds, three things could happen. First, and most likely, you are alone, wishing someone was with you so you could pass on your tidbit of useless knowledge. Second, someone else is with you who knows birds and points out the red-whiskered bulbul first. Or third, your companion knows nothing about birds, believes you made up the name "red-whiskered bulbul" and thinks you're trying to show off. Consequently, I especially value birding.

Another category is "Knowledge that Sounds Useless but Really Isn't." This includes such accomplishments as:

- Knowing the names of stars and constellations. (There's something true up there that the stars don't easily tell.)
- Knowing anything about woods or trees. (Ever hear of hemlock soup?)
- Memorizing children's poems or anything by Robert Frost. (The rhythm is good for your heart.)
- Recalling any factoid about any family member. The scratchy feel of the new percale sheets with peach and burgundy flowers. Important. The smell of my son's sweaty hair after an autumn game of chase. Essential. Celebrity trivia is useless; family trivia is vital.

I close my box of useless knowledge for now. The sparkle fades. But I place it awkwardly askew on a shelf in the hall. Anybody could brush by the box and spill its contents. Anytime.

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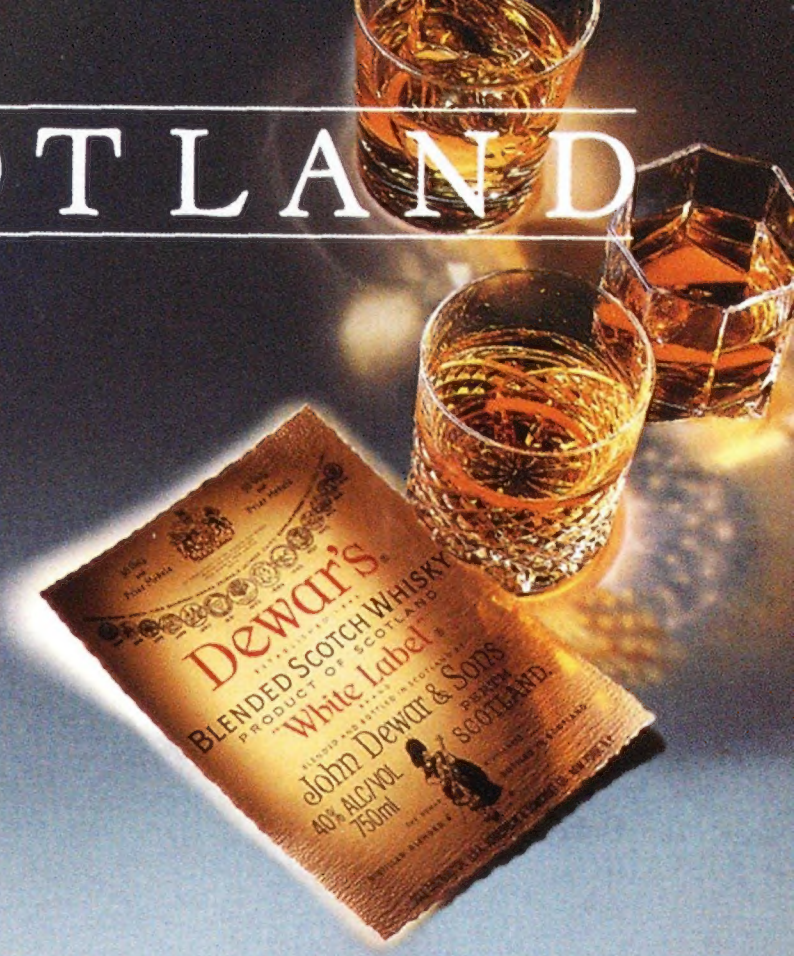

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The new Jenn-Air wall ovens — with more room and greater baking flexibility, you don't need an expert to tell you that anyone who owns one is one smart cookie. For a brochure showing the Jenn-Air line and the name of your nearest dealer call 1-800-JENN-AIR.

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THE SIGN OF A GREAT COOK™.

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